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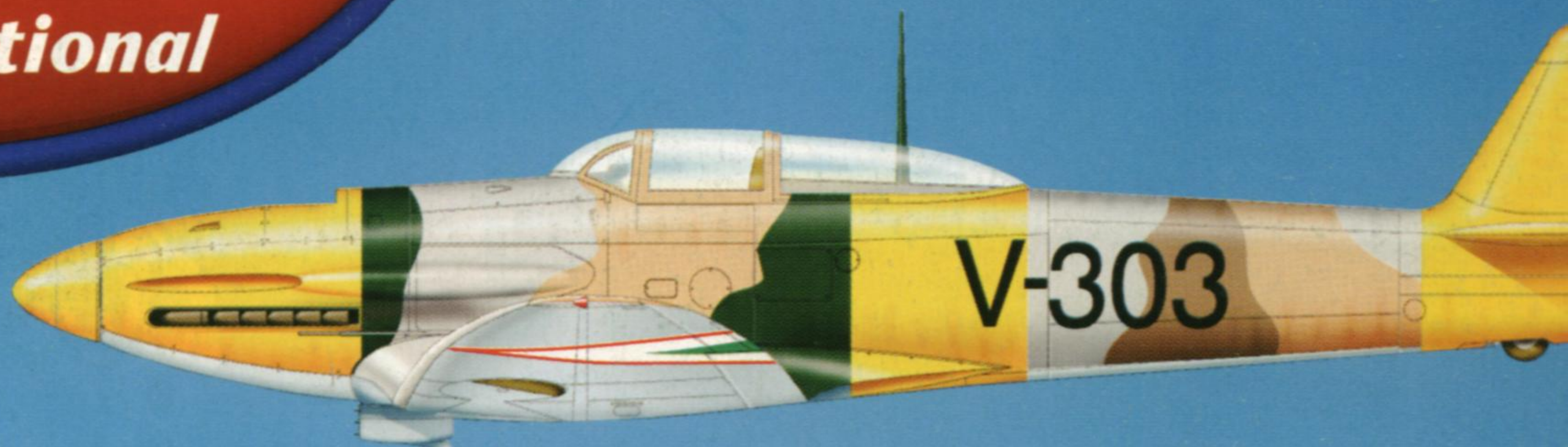
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Scale AVIATION Modeller International

HEINKEL'S MYSTERY PLANE

BY RICHARD J. CARUANA

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The birth of the Heinkel He 112 was shrouded in mystery, at least as far as information regarding its real status outside its country of origin was concerned. In the autumn of 1939 it was generally believed to be in widespread use by the Luftwaffe especially when a small batch of the type were pressed into service just before the Munich Crisis. But the story actually begins with the

pilot accommodation and vision from the (then still open) cockpit, with an inverted gull wing which provided a much clearer view ahead and downward. Its sturdier undercarriage had a wider track thus providing better handling on the ground. As presented at that time, the He 112 was some 25% heavier than the Bf 109 with a structure which needed far more man-hours for its construction.

inside the Bf 109 and further tests at Rechlin left little doubt which was the favourite though officialdom thought otherwise, and ten pre-production machines of both Messerschmitt's and Heinkel's fighters were ordered for further evaluation.

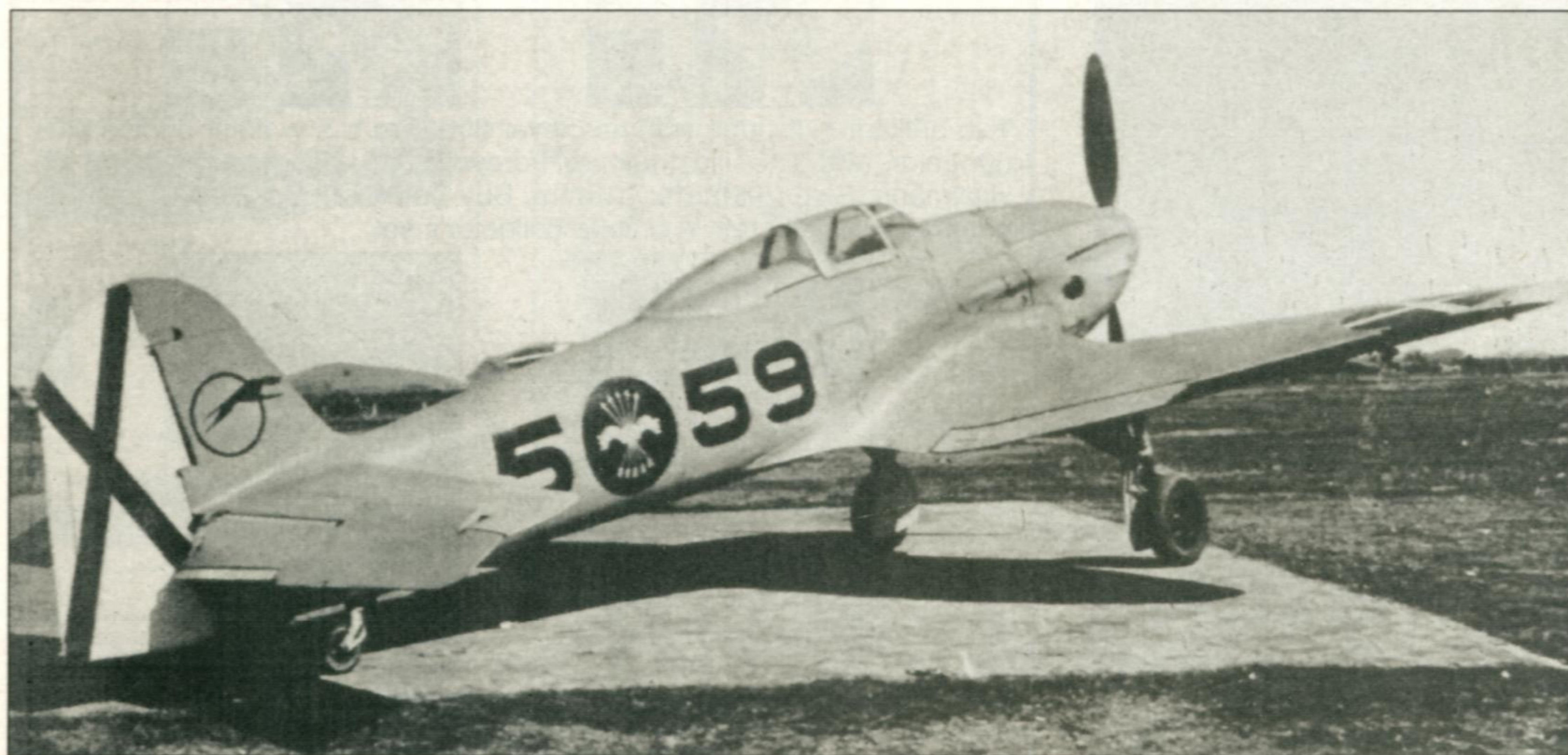
Enter the Jumo

Both He 112 and Bf 109 had been designed to be powered by the Jumo

gave the fighter an excellent climb rate and slow landing speed, it worked against its rate of roll, an area where the Bf 109 excelled.

Thus a new wing was designed for the V4 (D-IZMY), which was powered by a Jumo 210Da providing 680hp for take-off and 670hp at 4000m. This did improve handling qualities but the modifications had taken so long that the Bf 109 had by then won an edge even in this sphere. When both aircraft arrived at Travemünde for the autumn 1936 trials some aspects of the He 112's flight envelope had still not been fully examined and Flugkapitan Nitschke's demonstration had to be restrained. This gave the Bf 109 scope to demonstrate its full abilities. Moreover, the appearance of the compact, fast and agile Spitfire - much more in the class of Messerschmitt's machine than in that of Heinkel's - served to change the initial attitude in favour of the He 112. Not losing heart, Heinkel took his V4 prototype to Spain in December 1936 for operational evaluation with the Condor Legion and following its return it was exhibited at the Zürich-Dübendorf international flying meeting in July, 1937. This machine also travelled to Italy for the Milan fair and to Helsinki to perform a demonstration for the Finnish Air Force.

The V-series continued, with minor modifications between the V-5 and V-6 while the V-7 and V-8 became test beds for the Daimler Benz BD-600 engine, in an effort to increase power for such



One of seventeen He 112B-0s delivered to Spain in the early light grey/light blue scheme. Of note in this view is the wide track undercarriage which gave the aircraft much better ground handling than its close rival, the Bf 109 (R) Caruana Archives)

Heinkel's Mystery Plane

The He 112

enormous success of the Heinkel He 70 which won international repute for Germany at a time when this country was still officially tied by a treaty signed at the end of World War One prohibiting the production of military aircraft. Presented as a fast civilian transport, this aircraft actually pulled the lid off Germany's clandestine airpower of the 'thirties. The fighter, which Ernst Heinkel designed in reply to a specification meant to replace the Heinkel He 51 and Arado Ar 68 biplanes on which the then secret Luftwaffe had cut its teeth, borrowed heavily on the perfect aerodynamic lines of the He 70.

Though four aircraft were presented in response to this specification - the Arado Ar 80, Focke-Wulf Fw 159, Heinkel He 112 and Messerschmitt Bf 109 - it was evident from the very start that it was going to be a direct contest between the last two. They were extremely different machines, both in concept and design; even at a glance the He 112 presented perfectly blending streamlined lines, while the Bf 109 looked angular and ungainly though appreciably smaller and lighter. The roomier Heinkel afforded better

Had it not been for Ernst Udet's personal preference for Messerschmitt's 109, the beautiful Heinkel He.112 would have been one the major Luftwaffe's fighter aircraft of the Second World War. What could have potentially become a superb fighting machine was thrown into obscurity, and has remained largely forgotten even by the modelling fraternity. Considering the short production run of this fighter, it has flown in vastly distant theatres of the war in Europe, from the troubled skies of Spain to the Russian front. Richard J. Caruana redresses the balance by putting the He.112 in its deserved niche, specially timed to coincide with the imminent release of a new quarter scale model.

Both prototypes, powered by identical Rolls-Royce Kestrel V 12-cylinder liquid-cooled engines, proved to be on a par during extensive trials at Travemünde with speeds in the region of 465-480km/hr at 4500m. The Heinkel fighter furthermore scored positive points in handling characteristics and climb. It could turn

210 twelve-cylinder inverted-V liquid-cooled engine. With the availability of the Jumo 210C, the second Heinkel prototype (DIHGE) appeared with the new engine and joined the V1 (D-IADO) on the test programme, while V3 (D-IDMO) arrived five weeks later. Trials indicated that the He 112's wing area had to be cut down. Though it

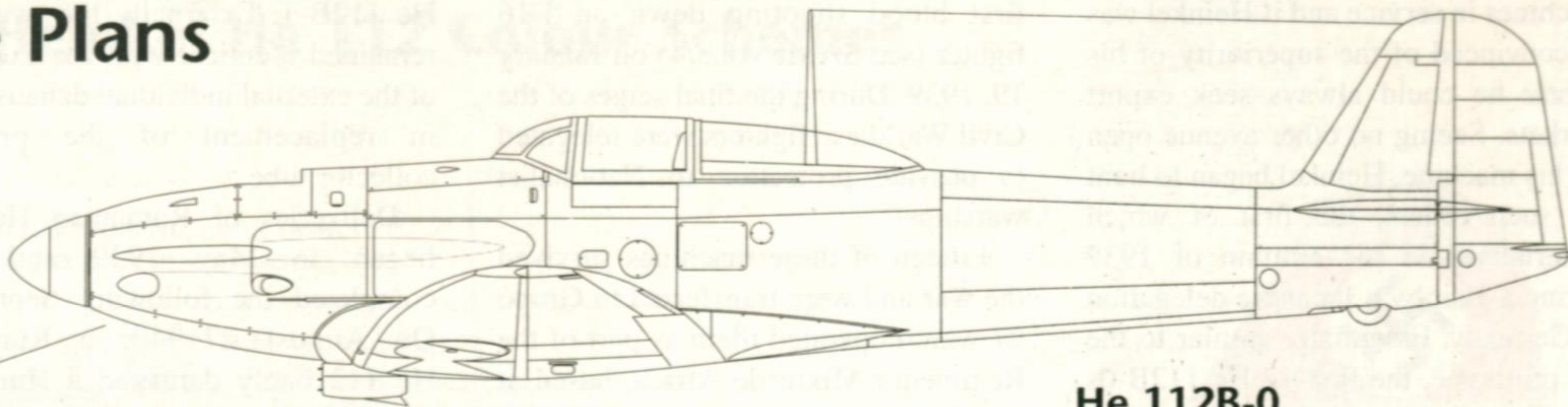
a heavy machine, especially when additional weight in the form of machine guns, radio and other service equipment had to be installed. He 112 V9 (D-IGSI) can be considered as the first true prototype for the ensuing series aircraft, the He 112B. Span was drastically reduced (becoming less than the length of the fuselage) while wing area now became closely comparable to that of the Bf 109. The aircraft took to the air in July 1937 powered by a Jumo 210Da. It also had an enclosed cockpit with a rear-sliding canopy, a feature which had originally appeared on the V7. Armament consisted of a pair of 20mm MG FF Oerlikon cannon in the wings and another pair of 7.9mm MG 17 machine guns firing through troughs in the sides of the fuselage.

Such a major redesign meant that the He 112 slipped back in timescale and while the V9 prototype had appeared, the Bf.109B was already in service. Generalmajor Ernst Udet visited the Heinkel works to witness a demonstration of the He 112 and had to admit that this fighter was superior to the Bf 109 in many respects. However, he concluded that it was unproductive to have two similar

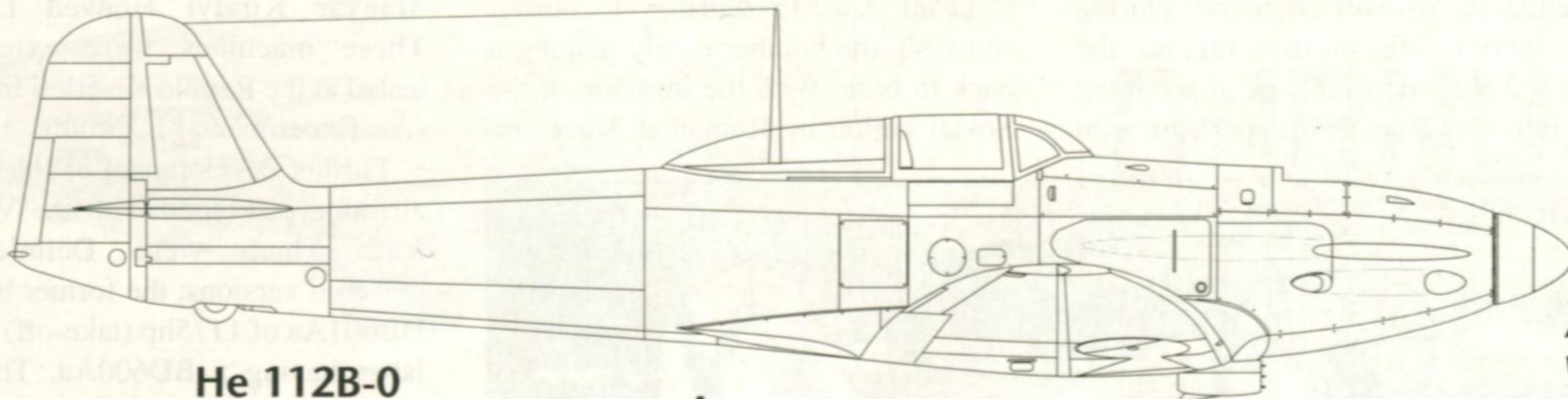
HEINKEL 112 Scale Plans

He 112

Note early style
exhaust pipe



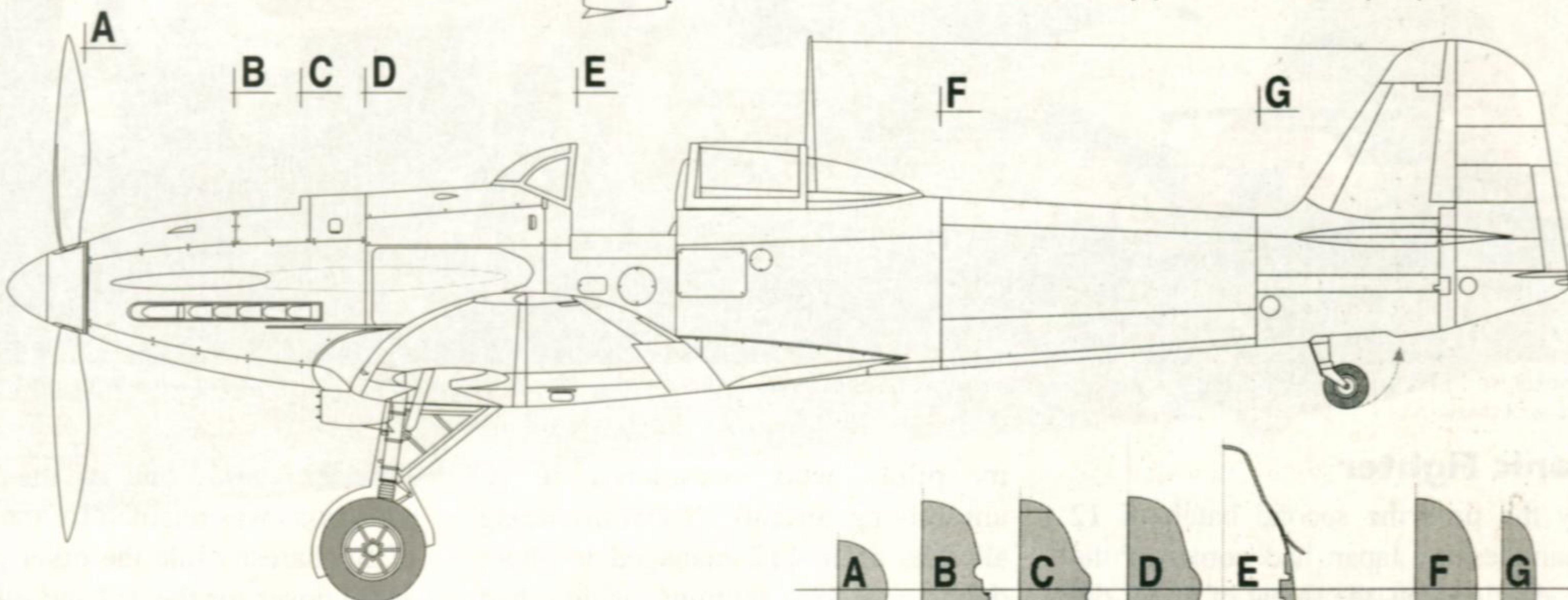
He 112B-0
Port Profile



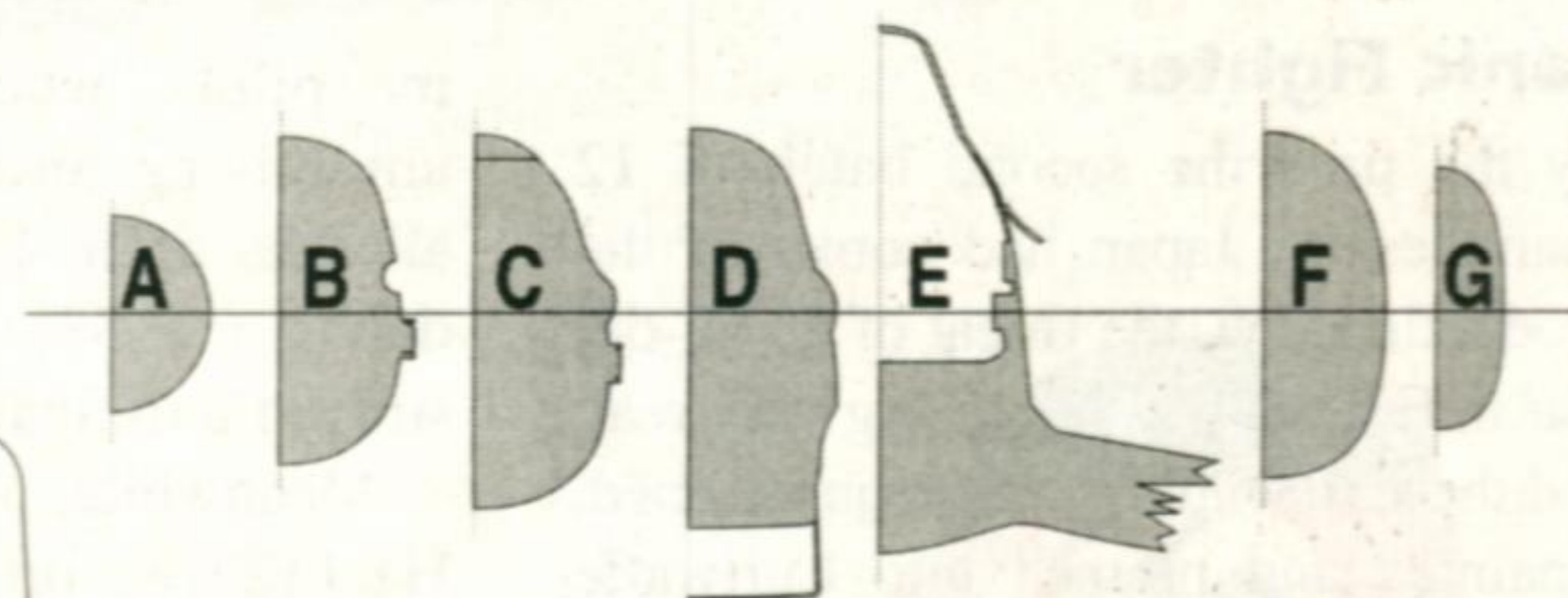
He 112B-0
Starboard Profile

He 112B-1
Port Profile

Aircraft shown in parked position
with canopy and side flap open



He 112
Upper Plan

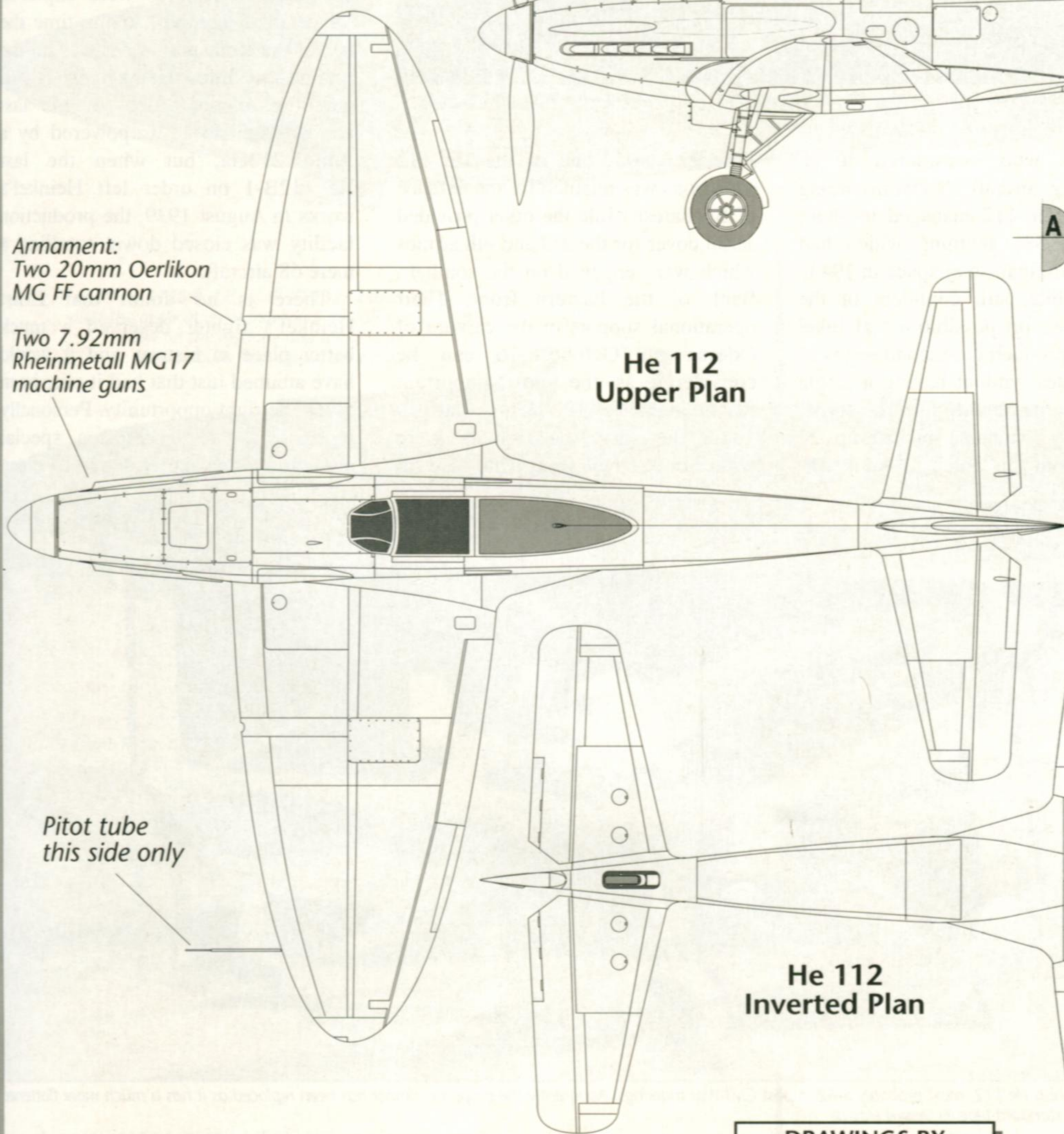


He 112B-1
Fuselage
Cross Sections

Armament:
Two 20mm Oerlikon
MG FF cannon

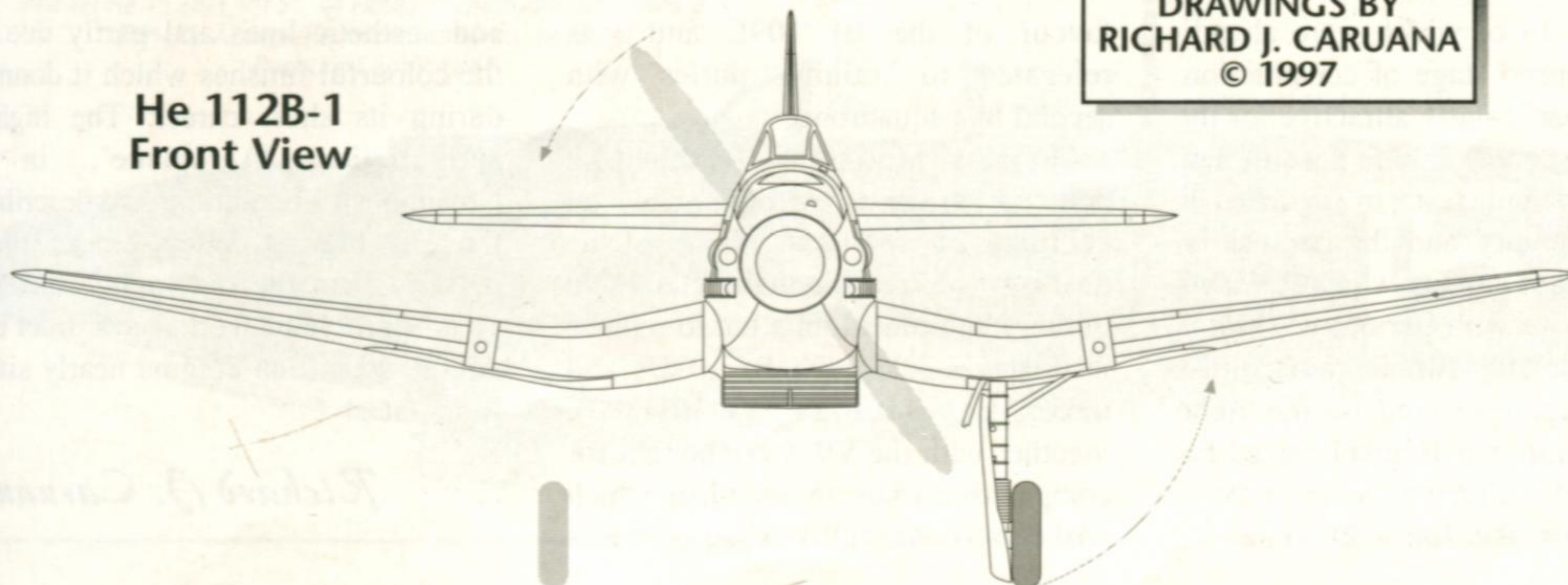
Two 7.92mm
Rheinmetall MG17
machine guns

Pitot tube
this side only



He 112
Inverted Plan

He 112B-1
Front View



DRAWINGS BY
RICHARD J. CARUANA
© 1997

Scale is 1:72

0 metres 1 2
0 feet 3 6

machines in service and if Heinkel was so convinced of the superiority of his fighter he could always seek export markets. Seeing no other avenue open for his machine, Heinkel began to hunt for such orders, the first of which materialised in the autumn of 1937 during a visit by a Japanese delegation in Germany. Essentially similar to the V9 prototype, the first 12 He 112B-0s were completed and shipped to Japan the following spring, under the designation A7Hel Type He Air Defence Fighter.

first blood shooting down an I-16 fighter (see SAMI Vol.3/4) on January 19, 1939. During the final stages of the Civil War these fighters were relegated to provide protection to Nationalist warships.

Fifteen of these machines survived the war and were transferred to Grupo 27 which operated them as part of the Regimiento Mixto de Africa, based at Melilla in Spanish Morocco. During its service life in that region, the He 112 suffered from lack of servicing facilities and became unpopular with

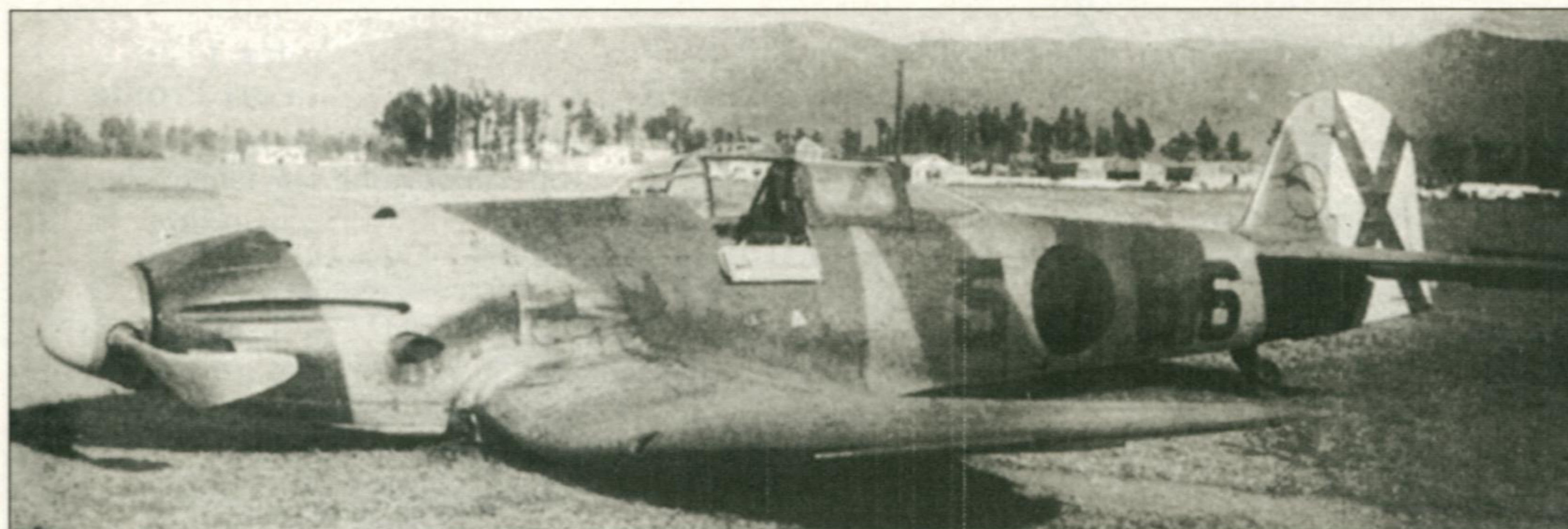
He 112B-1. Externally the two types remained identical with the exception of the external individual exhaust stubs in replacement of the previous collector tube.

Deliveries of Rumanian He 112s began in May 1939 and were completed the following September. On August 27 1940, a Rumanian He 112 badly damaged a Hungarian Caproni Ca.135 during a border skirmish, the bomber barely making it back to base. With the invasion of the Soviet Union by Rumanian forces on

best. The choice fell on the former though the Bf 109 was not to arrive in Hungary for a long time, no doubt due to the eruption of violent skirmishes with Rumania, another German ally. Given the designation type N° 34.01, the He 112s were actually preferred over the other more famous German fighter by Hungarian pilots but no more examples were acquired by the Magyar Királyi Honvéd Légiero. These machines were extensively tested at the Repülo Kísérleti Intézet (Air Experimental Institute).

Further development of the He 112 airframe continued with the V10 and V12 which were Daimler-Benz powered versions, the former having a DB601Aa of 1175hp (take-off) and the latter having a BD600Aa. The V10, also referred to as the He 112E, clocked an impressive 566km/hr at 4000m with full armament and boasted of a range exceeding 1000km. The V12 ended in Japan where its advanced features were explored for detailed research. At the time the last of the Rumanian order was on the production line, Heinkel was still pursuing export orders of his last version, the He 112C powered by a Jumo 210Ga, but when the last He 112B-1 on order left Heinkel's works in August 1939, the production facility was closed down, totalling a mere 68 aircraft.

There is no doubt that Ernst Heinkel's fighter deserved a much better place in history, and it would have attained just that had it ever been given the right opportunity. Personally it has always presented a special attraction to me, partly due to its clean



Heinkel He 111B-0, 5-66 of the Spanish Air Force, the subject of one of our colour profiles, seen in an undignified pose after a wheels-up landing (R) Caruana Archives)

Panic Fighter

By the time the second batch of 12 examples for Japan had come off the production line, the threat of an all-out war in Europe was becoming very real, and these machines were requisitioned, repainted and pressed into Luftwaffe service with III/JG 132. Offered to this unit as a stop-gap measure, the pilots were delighted to fly the He 112 which they found superior to the 109B/C. Their elation was short-lived as these machines were returned to Heinkel as soon as the Munich treaty was signed and the Luftwaffe stepped-down its emergency status.

However, by that time production of the Japanese Mitsubishi A5M, destined to become the legendary 'Zero', had picked up and the He 112 fighters were refused - quite rightly - on grounds of late delivery. This excuse cancelled the 18 aircraft on order, while evaluation of the original 12 was not met with excitement by Japanese pilots, used to much lighter and manoeuvrable aircraft; all airframes ended up at Universities where their structure was closely studied to garner the latest German manufacturing techniques.

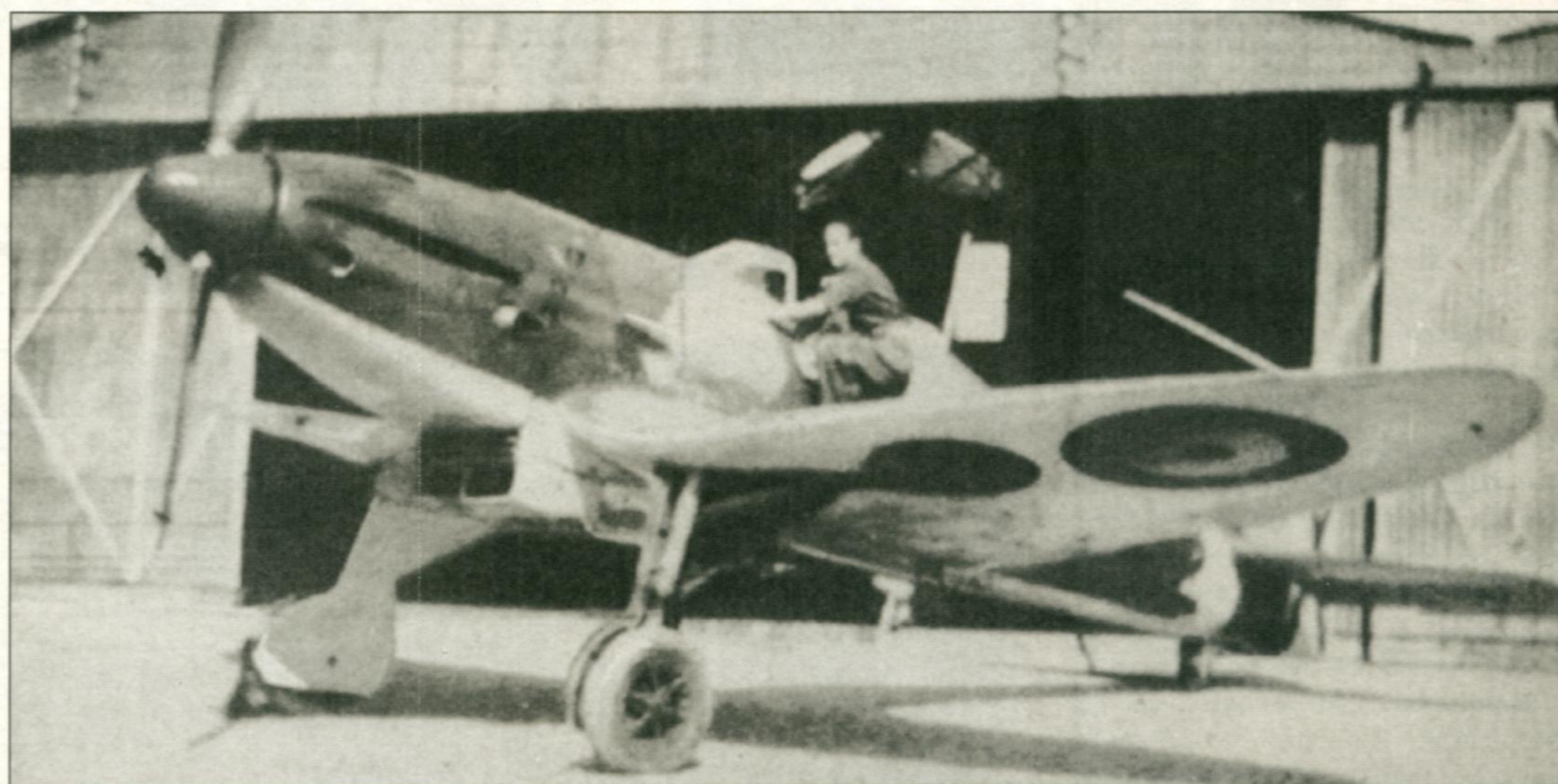
On to Spain

A ready market should have been found in Spain for the He 112B-0, but the aircraft of the Japanese order were only accepted there with mixed feelings. Seventeen examples went to form one of Grupo 5-G-5's squadrons (the other being equipped with the Bf 109E) while the 18th aircraft was re-engined with a Jumo 210G of 700hp (take-off) featuring fuel injection, thus becoming the V11. The Spanish He 112s were intended as top cover for the CR.32s, flying about 2000m above the biplane's operational altitude. On the first sortie, Garcia Pardo, the unit's commander, drew

its pilots who considered it an unforgiving aircraft. Notwithstanding all this, a He 112 managed to shoot down a P-38 Lightning which had strayed into Spanish airspace in 1943.

Meanwhile, still confident of the He 112's export possibilities, Heinkel set about producing a second series of 30 examples without having a single order on its book for the type. Fortunately, Rumania picked up 24 aircraft from this batch to equip two

June 22, 1941, one of the He 112 squadrons was retained for the defence of Bucharest while the other provided aerial cover for the 3rd and 4th armies which were engaged on the southern flank of the Eastern front. Their operational support in the capture of Odessa on October 16 can be considered as the most important feature in the He 112's history. Early in 1942, the surviving fighters were withdrawn from front line use in



Another Spanish He 112, most probably 5-62 in post Civil-War markings. Apparently the propeller spinner has been replaced as it has a much more flattened tip than the standard type (R) Caruana Archives)

squadrons, 13 of which were already in an advanced stage of construction. This was particularly attractive for the customer who was in dire need of new equipment, and fast, to replace its ageing inventory and the acquisition formed part of a treaty which Rumania had concluded with Germany in March 1939. These He 112B-0s were of the standard type, powered by the Jumo 210Ea engine, but Heinkel spiced his product by offering a re-engined version with the Jumo 210G as the

favour of the Bf 109E and was relegated to training duties with second line squadrons.

Hungary, too, had reached a political agreement with Germany on February 24, 1939 and as part of the deal it was to receive material aid and military equipment. In a bid to replace its Fiat CR.32s, three Bf 109Ds and three He 112B-1s (V-301-303), together with the V9, were bought for comparative trials to establish which of the two could fulfil its requirements

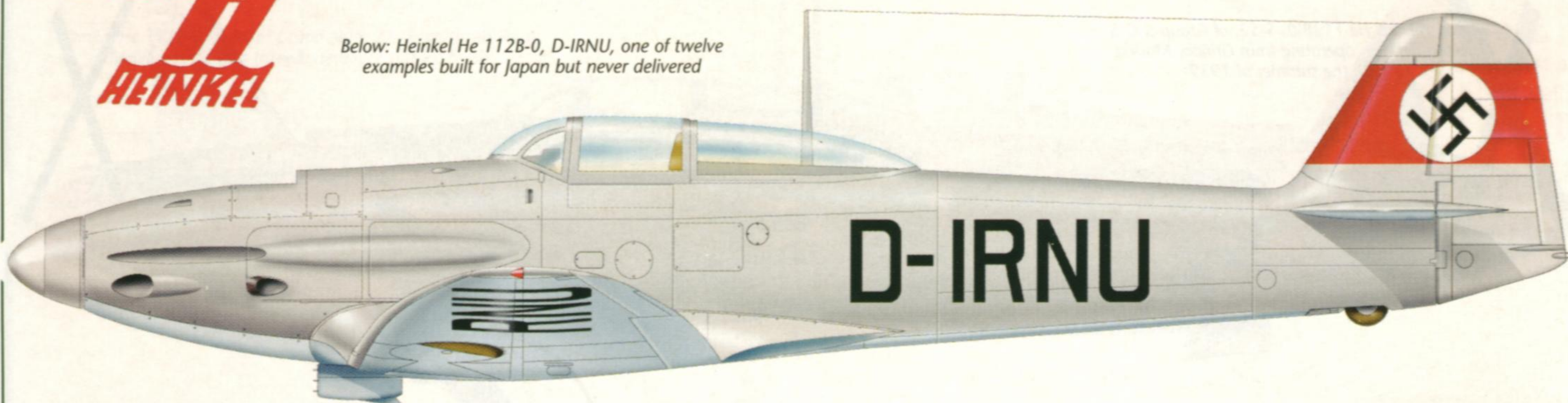
and aesthetic lines and partly due to the colourful finishes which it donned during its short career. The highly authoritative 'Aeroplane', in a November 1939 edition, had described the He 112 as much "more of a mystery than the over-publicised Me 109s" - prophetic words indeed, for the aircraft is still an enigma nearly sixty years later!

Richard J. Caruana

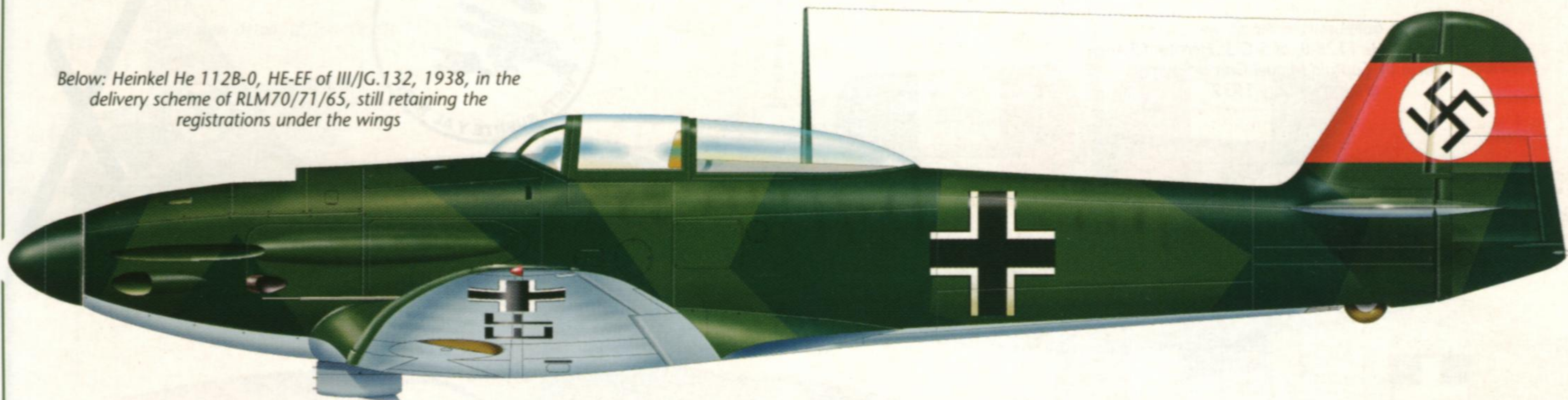


Heinkel He 112 Colour Schemes

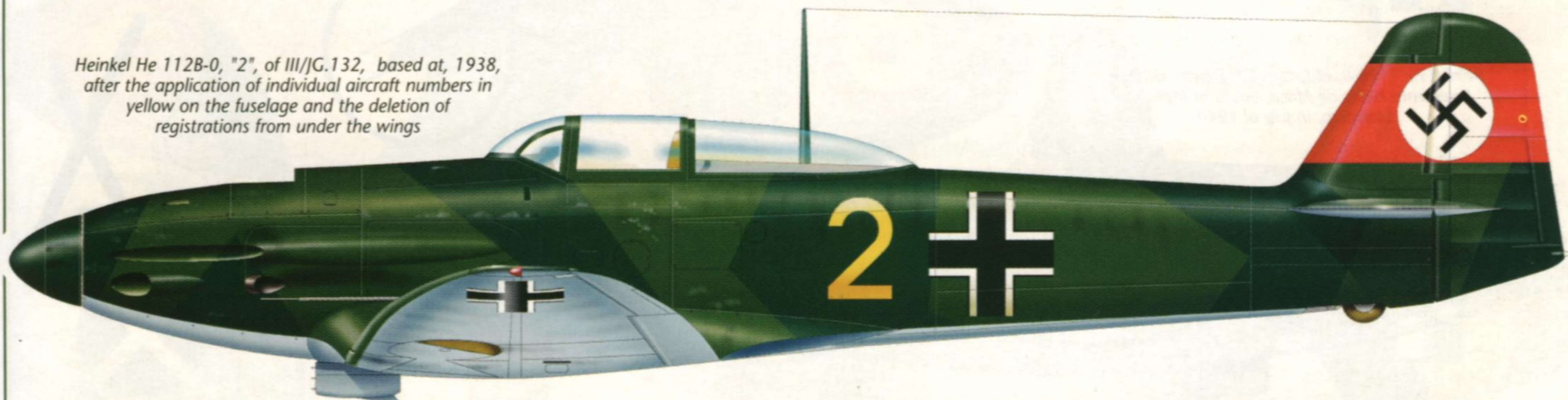
Below: Heinkel He 112B-0, D-IRNU, one of twelve examples built for Japan but never delivered



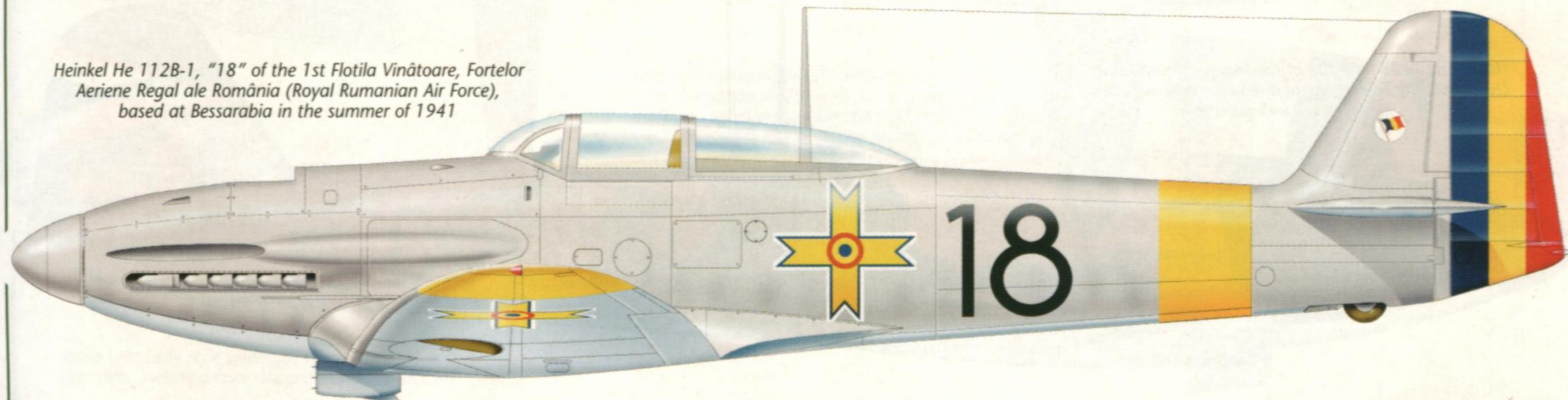
Below: Heinkel He 112B-0, HE-EF of III/J.G.132, 1938, in the delivery scheme of RLM70/71/65, still retaining the registrations under the wings



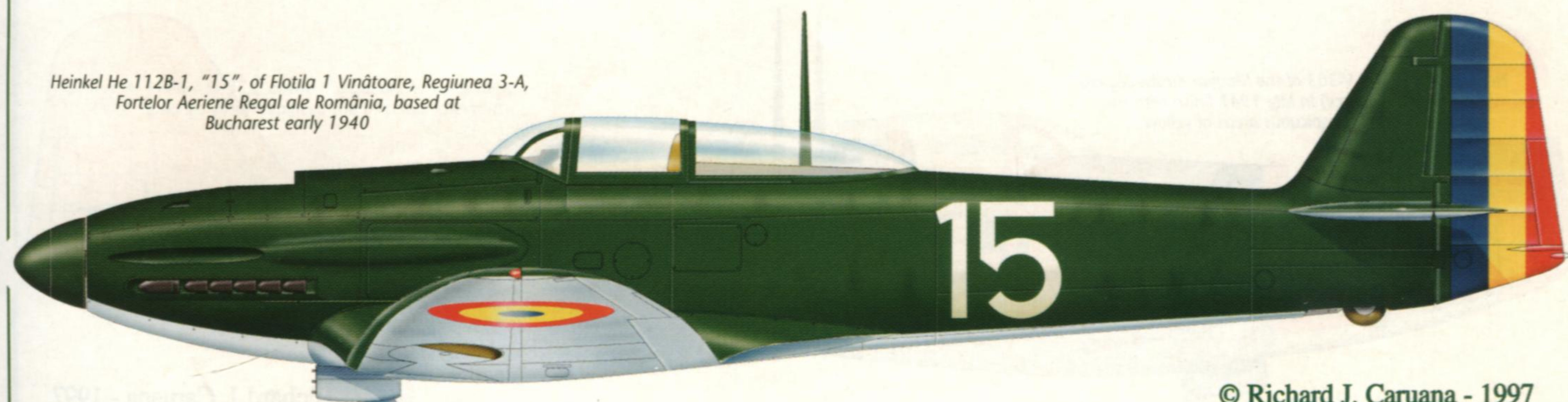
Heinkel He 112B-0, "2", of III/J.G.132, based at, 1938, after the application of individual aircraft numbers in yellow on the fuselage and the deletion of registrations from under the wings



Heinkel He 112B-1, "18" of the 1st Flotila Vinătoare, Fortelor Aeriene Regal ale România (Royal Rumanian Air Force), based at Bessarabia in the summer of 1941



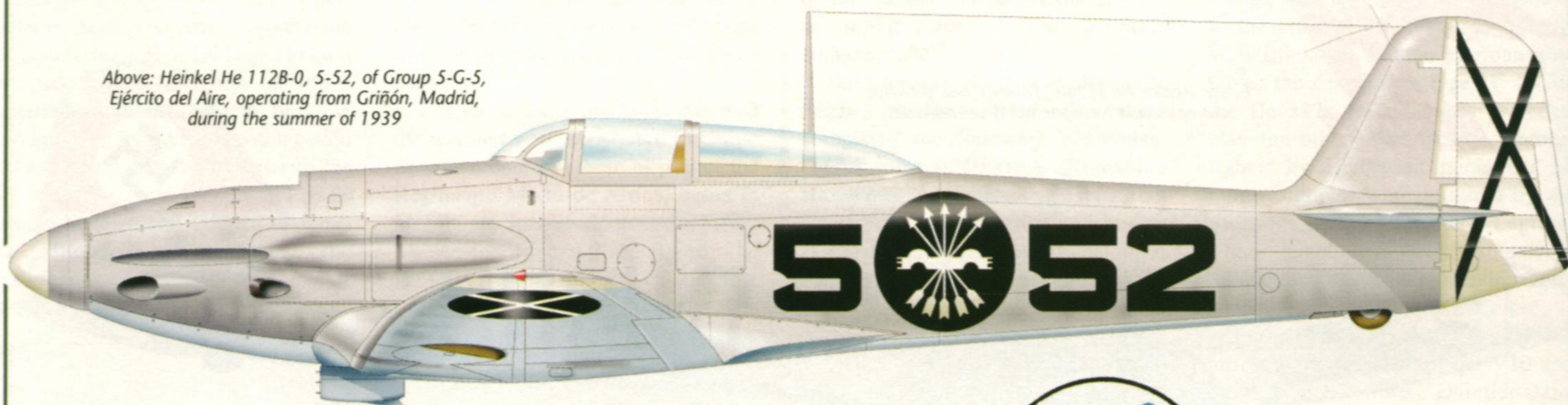
Heinkel He 112B-1, "15", of Flotila 1 Vinătoare, Regiunea 3-A, Fortelor Aeriene Regal ale România, based at Bucharest early 1940



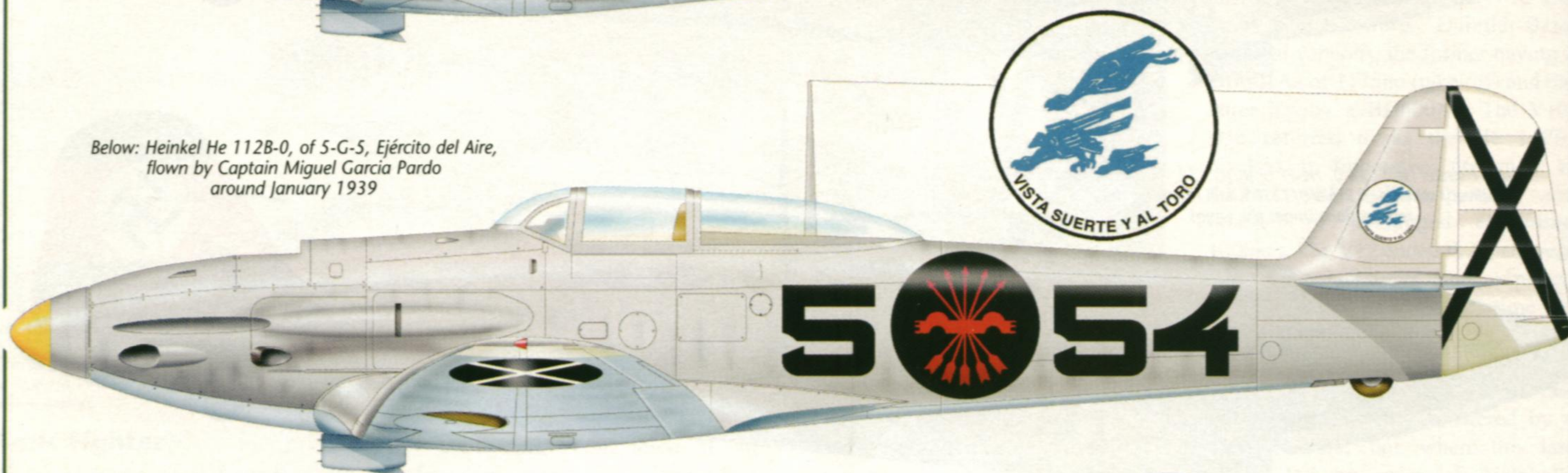
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Heinkel He 112 Colour Schemes

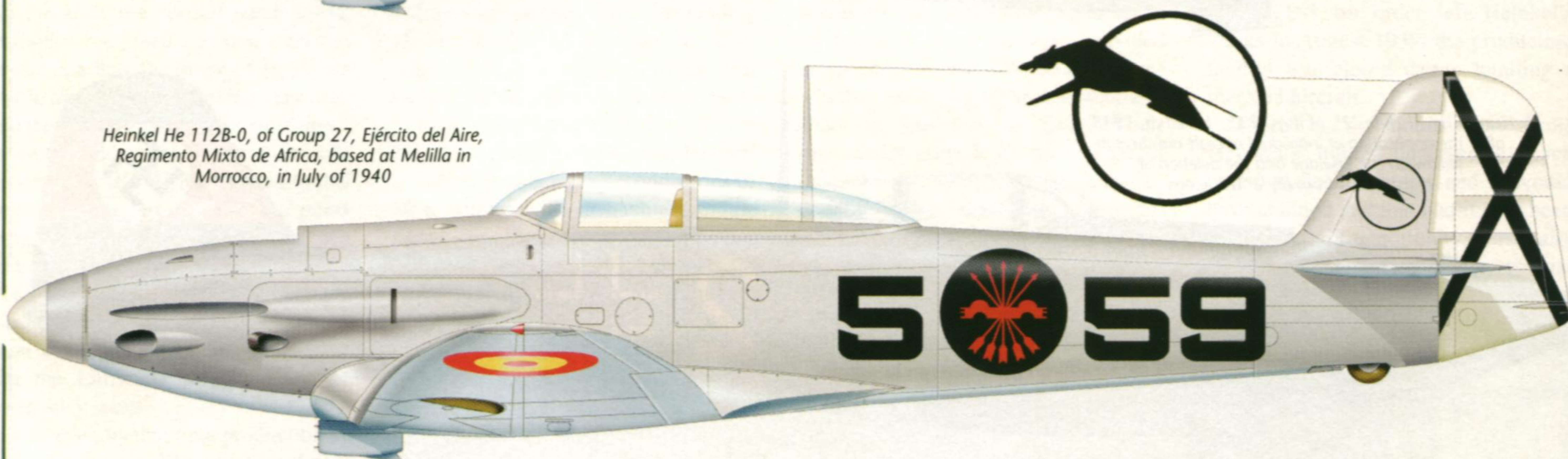
Above: Heinkel He 112B-0, S-52, of Group 5-G-5, Ejército del Aire, operating from Griñón, Madrid, during the summer of 1939



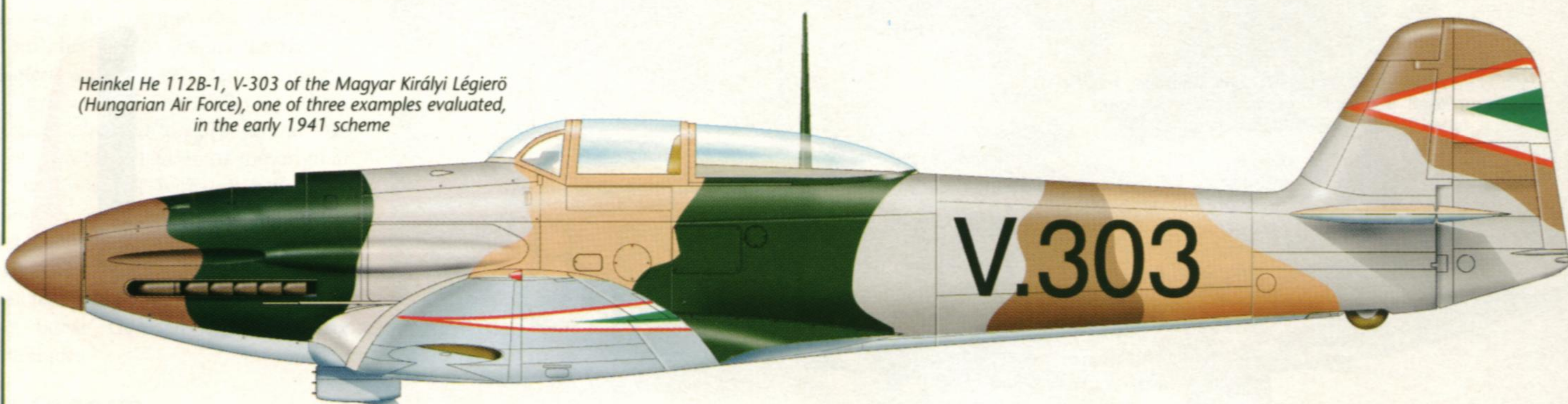
Below: Heinkel He 112B-0, of 5-G-5, Ejército del Aire, flown by Captain Miguel García Pardo around January 1939



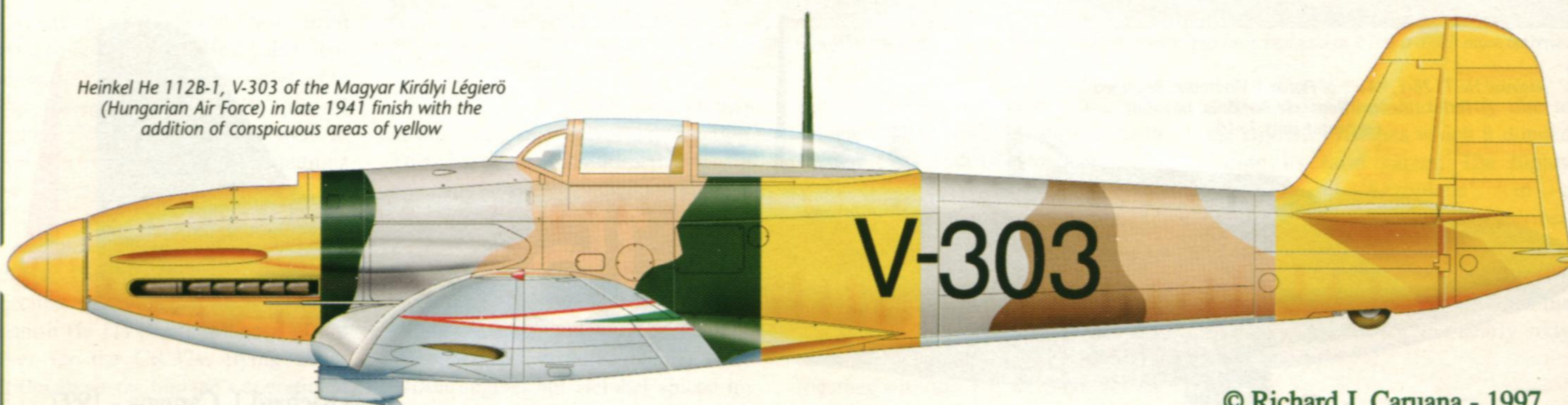
Heinkel He 112B-0, of Group 27, Ejército del Aire, Regimiento Mixto de Africa, based at Melilla in Morocco, in July of 1940



Heinkel He 112B-1, V-303 of the Magyar Királyi Légierő (Hungarian Air Force), one of three examples evaluated, in the early 1941 scheme



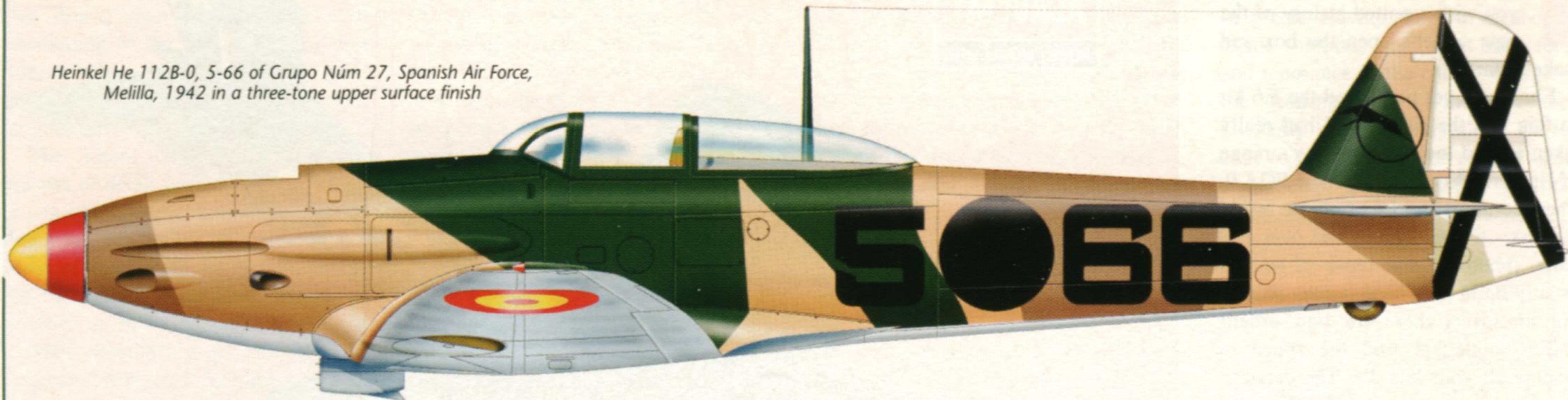
Heinkel He 112B-1, V-303 of the Magyar Királyi Légierő (Hungarian Air Force) in late 1941 finish with the addition of conspicuous areas of yellow



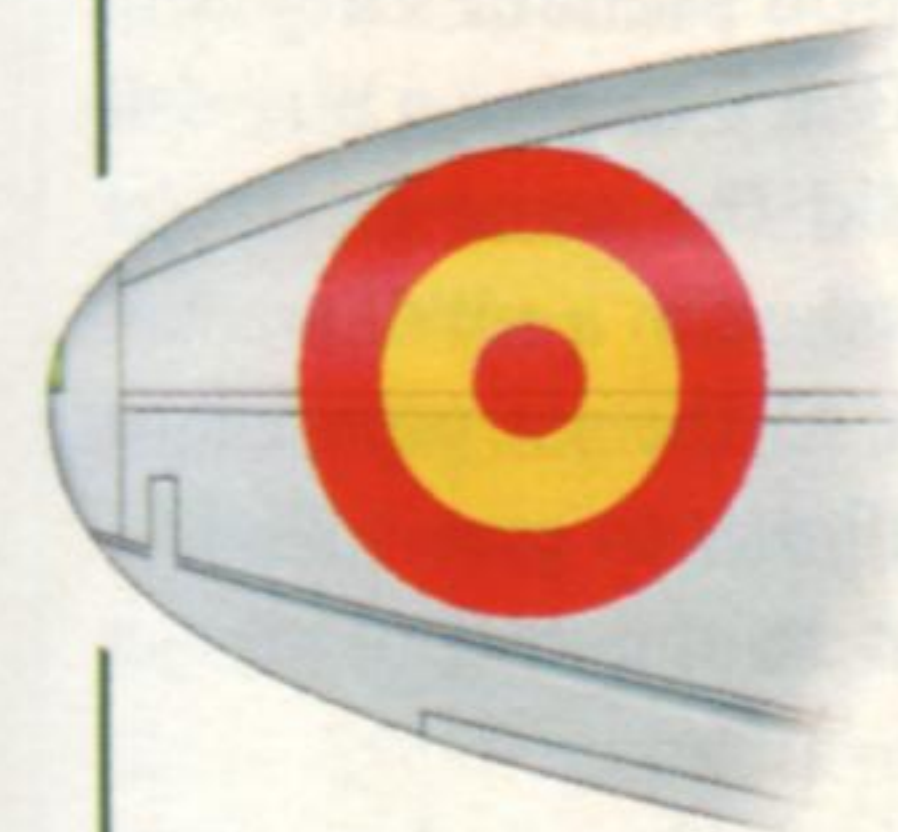
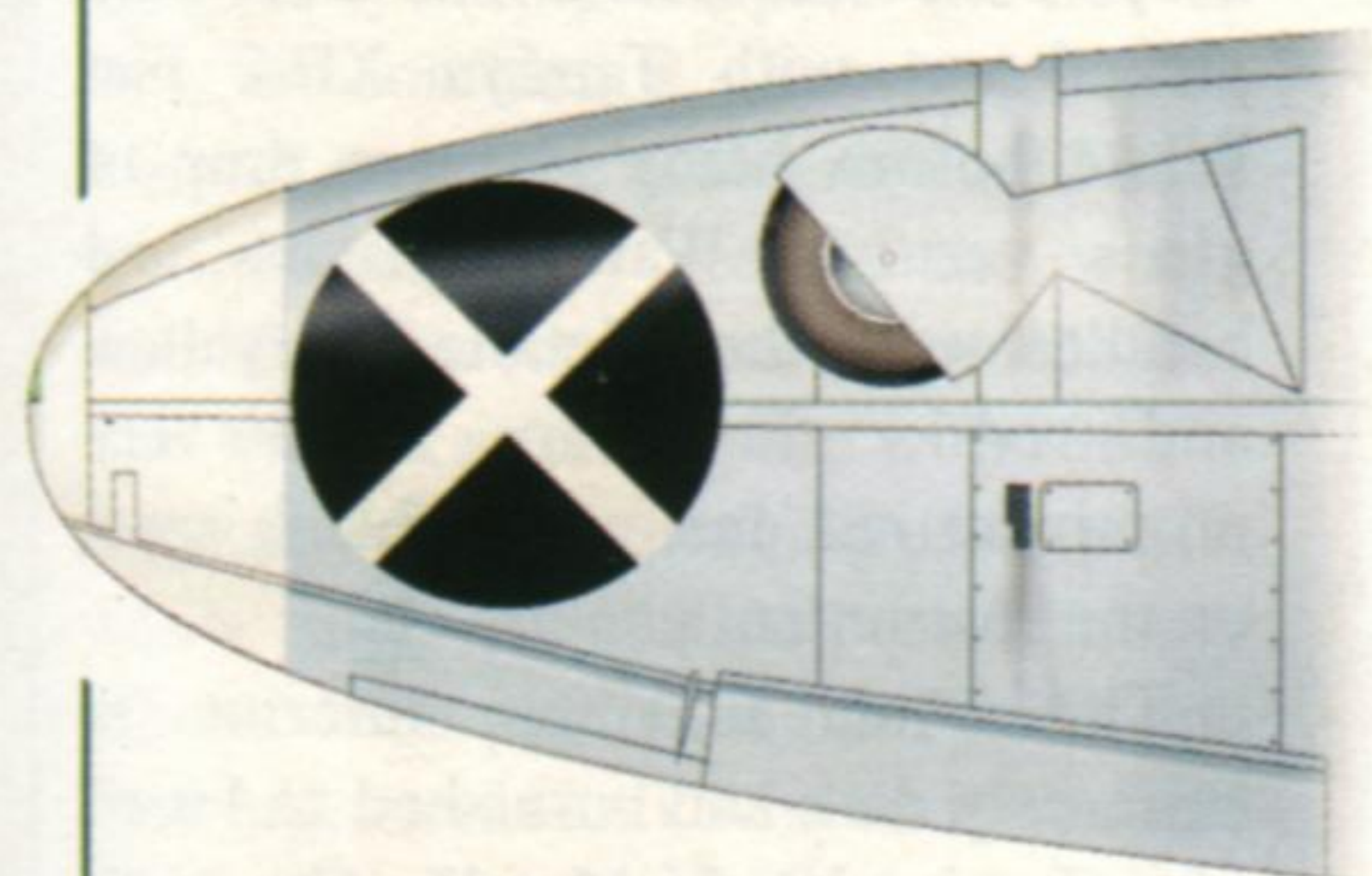
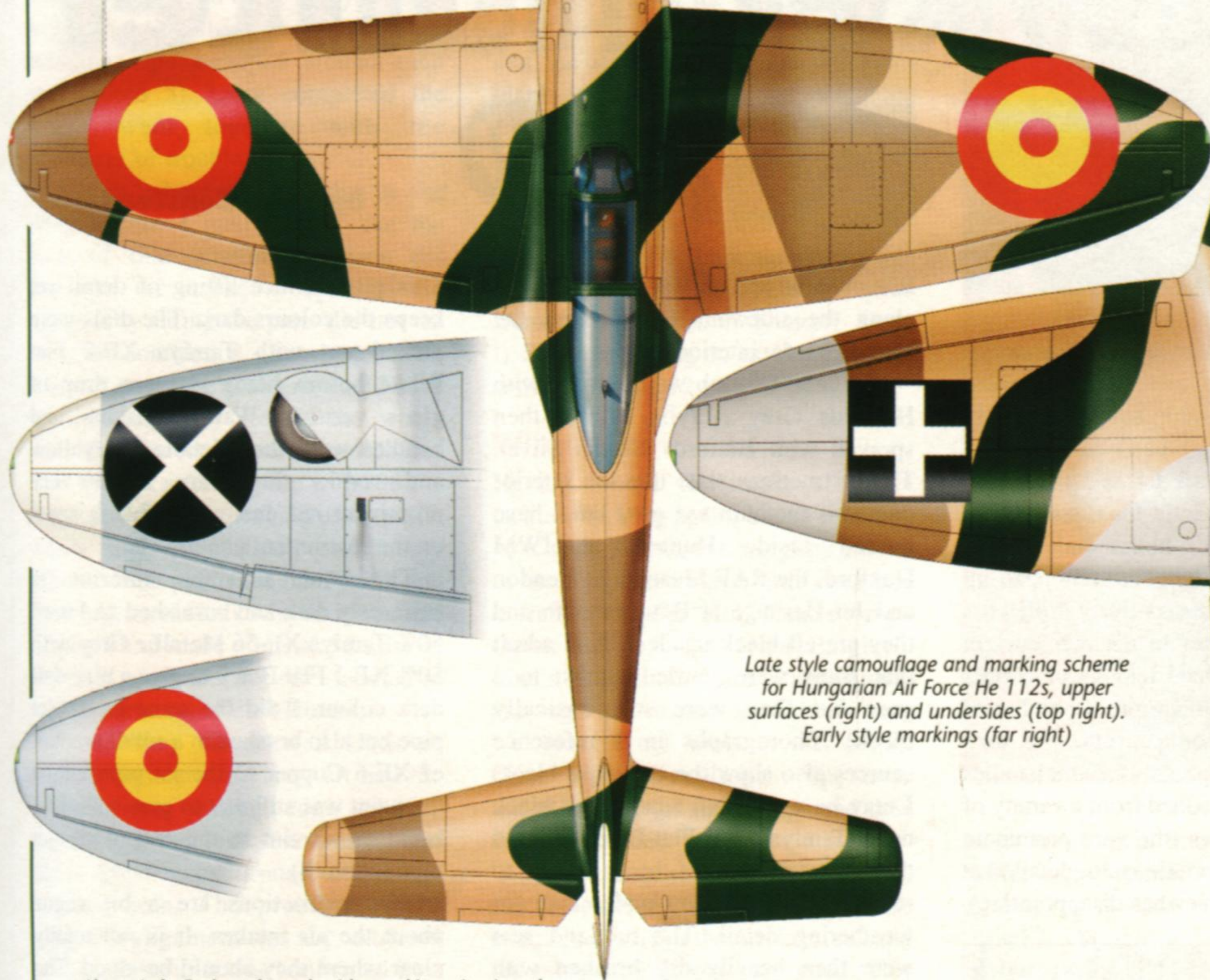
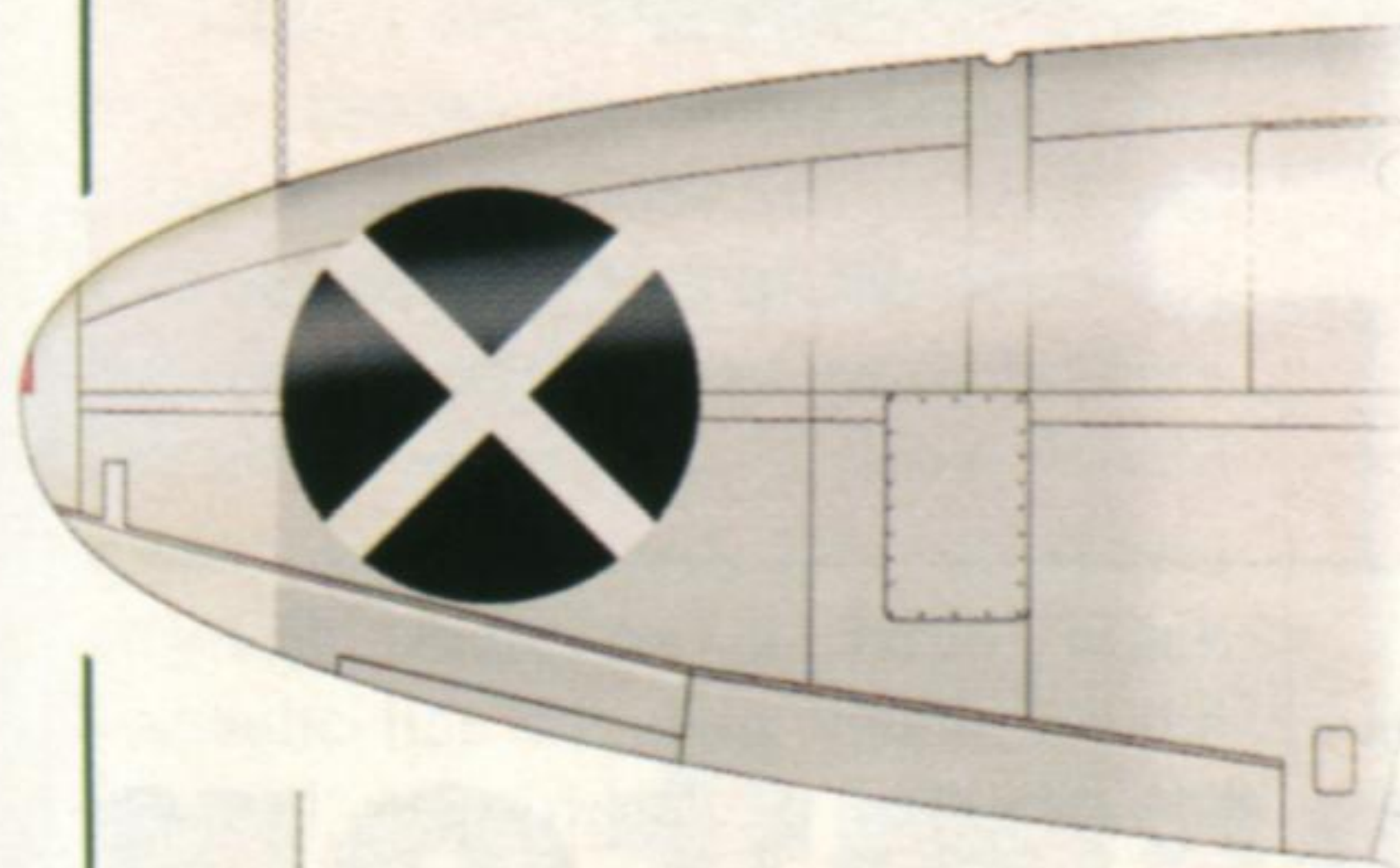
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Heinkel He 112 Colour Schemes

Heinkel He 112B-0, 5-66 of Grupo Núm 27, Spanish Air Force, Melilla, 1942 in a three-tone upper surface finish

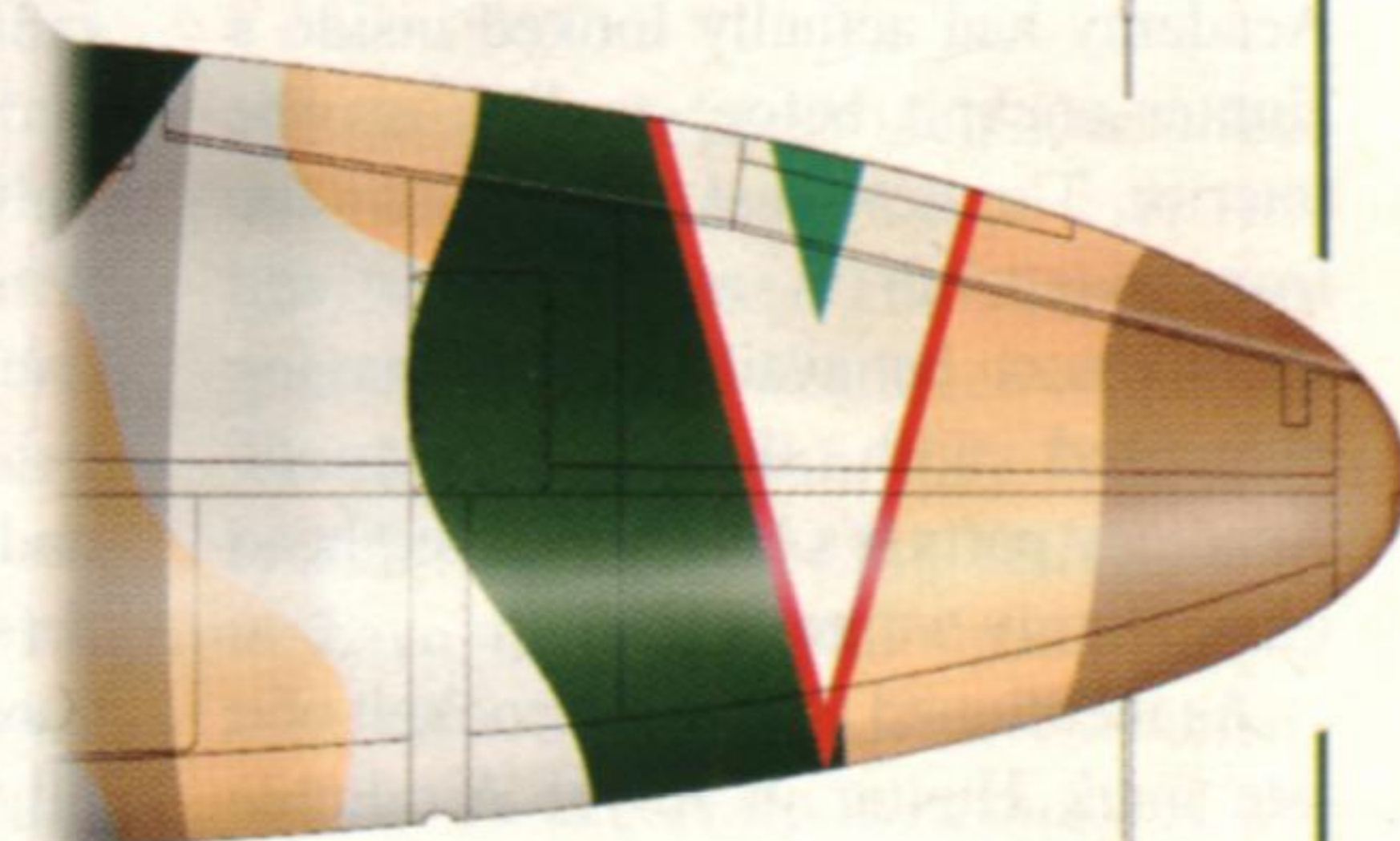
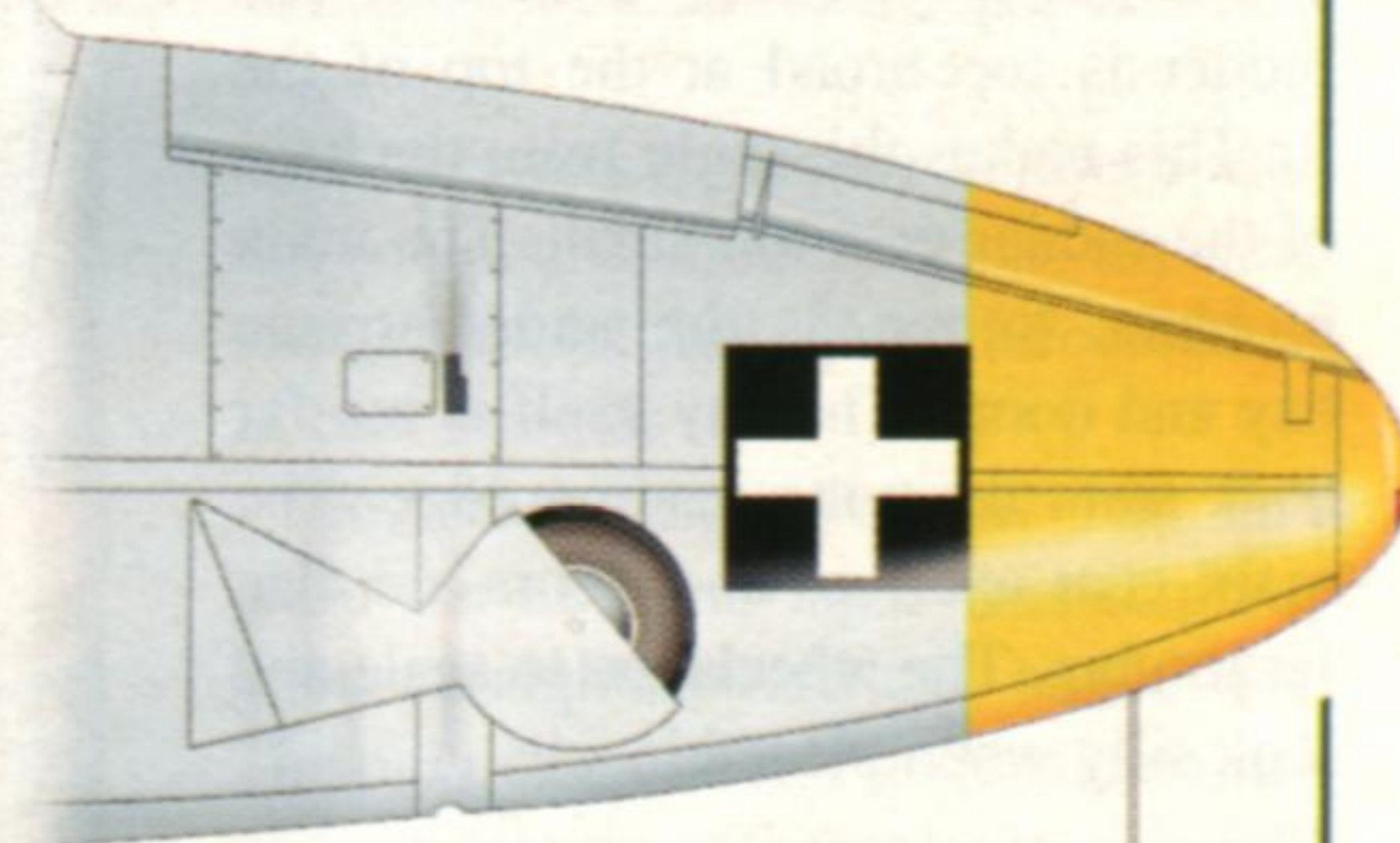
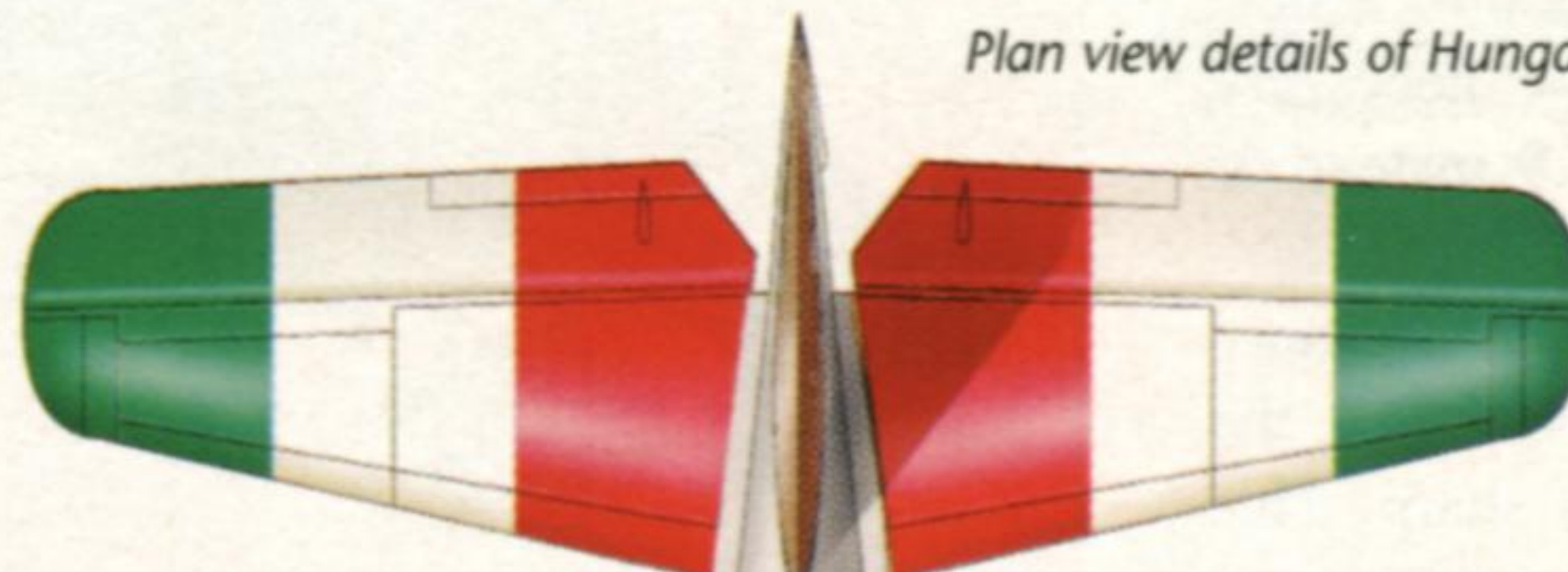


Plan view details of Spanish He 112s



Far Left: Upper wing detail, early style
Below Left: Typical pattern for camouflaged examples such as 5-66 above

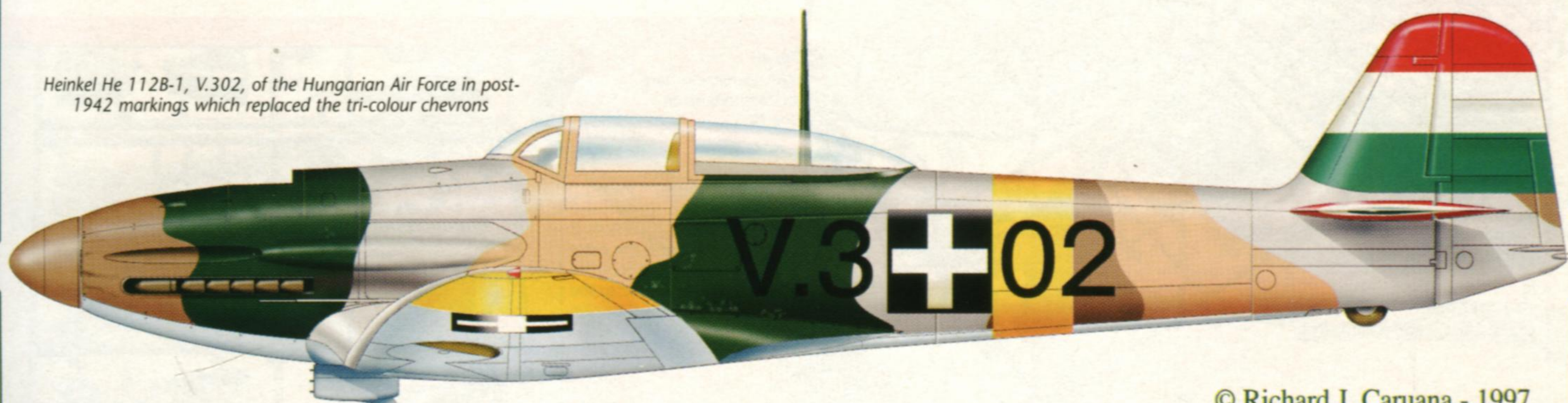
Plan view details of Hungarian He 112s



Late style camouflage and marking scheme for Hungarian Air Force He 112s, upper surfaces (right) and undersides (top right). Early style markings (far right)

Above Left: Early style underside markings (top) and later style, including camouflaged examples (above)

Heinkel He 112B-1, V.302, of the Hungarian Air Force in post-1942 markings which replaced the tri-colour chevrons



Is the Hunter the sexiest jet ever designed? Well, if it isn't then it comes damn close. I won't bore you with a potted history of the type so let's open the box and make a start.

I have not yet purchased the F.6 kit so this was the first time I had really taken a good look at Academy's range of Hunters. So, this is the new FGA.9. There certainly is a lot of plastic inside the box - 6 large sprues and over 150 parts. (photo 1). For those of us that usually build in 1/72nd it does seem a big aircraft (where do you ardent 1/48th modellers find the space to display all your kits ?!). The detail is good and the engraved panel lines are exquisite. Separate flaps, ailerons and rudder - very nice. In the box a new sprue section provides the necessary bits to make the the FGA.9 instead of the F.6. (photo 2).

Checking the kit against scale planes and the real thing you notice that the nose profile is a little too sharp. This makes the aircraft slightly too long but not enough to cause concern. The rudder is too broad at the top of the fin. This makes the angle from the base of the rudder post too small. The main problem, to me, is the undercarriage bay and doors. The bay itself is too far back from the wing leading edge. The main gear aperture and doors are also far too big. The wheels are to scale and look silly when placed inside.

Construction

The first thing you notice is the size of the ejector seat, or rather the lack of size of the ejector seat. I can't honestly believe that Academy thought this was 1/48th scale. The cockpit tub is also too shallow, possibly to compensate for the small size of the seat. I was somewhat disappointed with the poor level of detail inside the cockpit. The interior of a Hunter is very busy and I couldn't help but wonder if the people from Academy had actually looked inside a Hunter cockpit before tooling up the interior. The new seat and cockpit tub from Aeroclub is much better and should now be available. So, having dispensed with the "not-so-good" Academy parts it's best modelling head on and away we go.

As mentioned above, the cockpit of a late mark Hunter in Royal Air Force



Hawker Hunter FGA.9

by Steve Benstead



service is very busy and an ergonomic nightmare. Like all combat aircraft, extra avionics were stuck on where space permitted. I used parts from a 1/700th ship detail set as I find these come in really handy for extra interior bits like avionics boxes and interior lights, warning lights etc (chopped up radar units, gun turrets etc). I drilled 0.3 and 0.5 mm holes in the rear cockpit bulkhead and glued lengths of copper wire through as there are a number of cables which connect into the area behind the seat (photo 4). Extra handles and levers were added from a variety of scrap box sources (the very prominent canopy release handle is not detailed at all which is somewhat disappointing).

Bits of sprue and microstrip were glued along the sidewalls to represent the elbow guards, interior lighting, etc.

The seat, and tub were primed with Halfords Grey Acrylic Primer then sprayed with Halfords Nissan Silver. The instructions state that the interior colour is medium sea grey but I have looked inside Hunters at IWM Duxford, the RAF Museum at Hendon and Jet Heritage at Bournemouth and they are all black inside (OK, I admit that some were scuffed almost to a grey but they were still basically black). Photographs in 3 reference sources also show the colour as black. I may be wrong but I painted it black using Tamiya XF-1 Flat Black. I could then scratch bits of black away to reveal the silver layer underneath for weathering detail. The tub and seat were then heavily dry brushed with 1118 Extra Dark Sea Grey from the Aeromaster Warbird Acrylics range.

This gives a nice lifting of detail yet keeps the colours dark. The dials were picked out with Tamiya XF-2 Flat White before being given a drop of gloss varnish. Warning lights and handles were then detailed in yellow and red - there are some very prominent red and yellow/black spots on the instrument panels.

The rear fuselage interior is extremely dark and burnished so I used 50% Tamiya XF-56 Metallic Grey with 50% XF-1 Flat Black to give a nice dull dark colour. I did the same to the jet pipe but also brushed in a small amount of XF-6 Copper to the jet pipe whilst the paint was still wet to give a slightly burnt brown tint to the end of the jet pipe (photo 3).

The instructions are a bit vague about the air intakes. It is not totally clear where they should be glued. The instructions look like they should be on top of the centre section whilst the

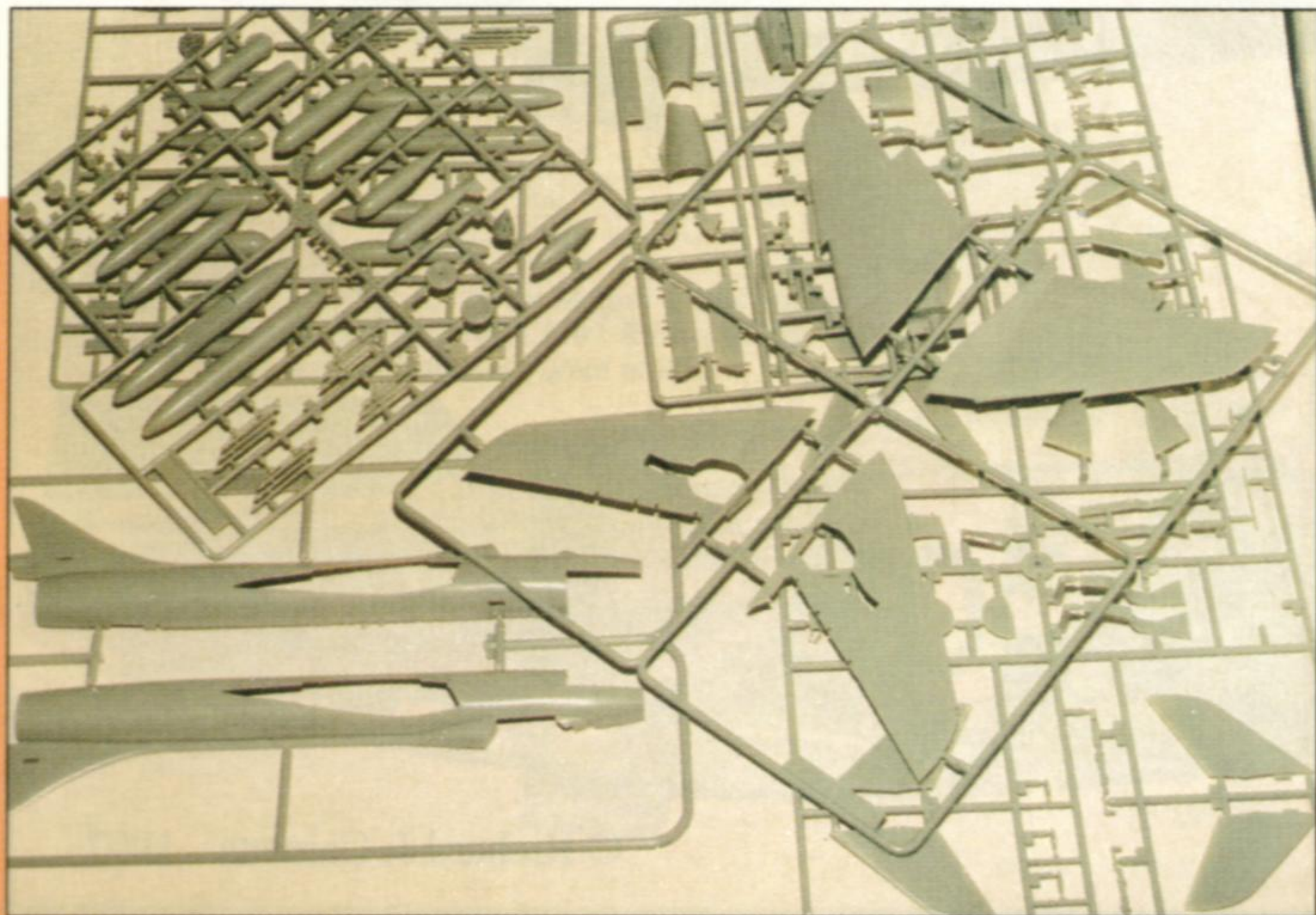


Photo 1
The six large sprues of components in the kit

Photo 2
Here is the extra sprue which contains parts unique to the FGA.9 version



photo shows a different position. Make sure you glue the intake sides flush with the profile of the centre section. If you don't, then it will affect the positioning of the wings. The top and bottom halves of each intake also gave me some problems regarding alignment.

The wheel wells have a lovely amount of detail but you can add more if you like lots of plumbing. I used a thin wash of Tamiya Thinners with a blend of Tamiya XF-52 Flat Earth and XF-1 Flat Black in differing amounts to produce a basic blackish/brownish/greyish weathering to the interior surfaces. There are 2 prominent ribs on the inboard side of each main undercarriage bay and these were made from lengths of microstrip.

Feeling like making an effort with the detail, I then drilled holes at various points around the undercarriage bay using my illustrations and photographs as a reference. Most of the plumbing consists of standard size hydraulic lines that are silver or grey in colour (I used copper wire sprayed grey or silver) although there is a large black hydraulic line which is visible on the in-board wall (this was built using a length of electrical cable sprayed black and with 2 thin strips of silver painted masking tape wrapped around each end (photo 5). Once completed the wings went together with the minimum of trouble.

This is where the sub-plot to the story begins. I really didn't like the look of that junction between the fuselage, the intake scoops and the wings. Dry fitting the parts did not fill me with confidence - it was all a bit messy. I guess the problem would have been considerably less if the wings were the correct shape in profile but they weren't so fitting the wings to the fuselage was difficult (I am using polite words such as difficult and messy which can be published but I think you get the general idea). Maybe it was me. Maybe I had made a mistake earlier in the build sequence. So, off I toddled to look at some completed Hunters.

Hmm, they all showed signs of filler and plasticard. They all had the wing inboard trailing edge splitting open along the join. Some even had damn great gaps around the wing/fuselage join. The problem of the wing mis-alignment was not restricted to my sample as it was confirmed by a number of modellers. So it wasn't just me, phew!

Wing fit, take 1...

How did I get the wings on, I hear you say? Mainly by swearing at them. No, seriously, the port wing was OK once some plasticard had been added around the locating point on the fuselage and a little sanding down of the underside wing had taken place. It was the starboard wing which caused me the ulcer. Because of the shape of the upper

that you need 10g of nose weight. There isn't a lot of room in the nose so I crammed it in as best I could. The new white metal seat from Aeroclub helped as well. The nose was added and there you go - one Hunter (well, sort of). A bit more filler to tidy it up, and then it's time for lots of gentle sanding down.

The day was bright and so was I. Confident that I had conquered the

Wing fit, take 3...

So it was a major repair job and some new tactics to persuade the wing to stay in place. Having tried a number of subtle solutions I just used brute force and ignorance in the end. I superglued the trailing edge joint and then gradually made my way along the top edge to the intake. Same process again underneath. It's not pretty and the

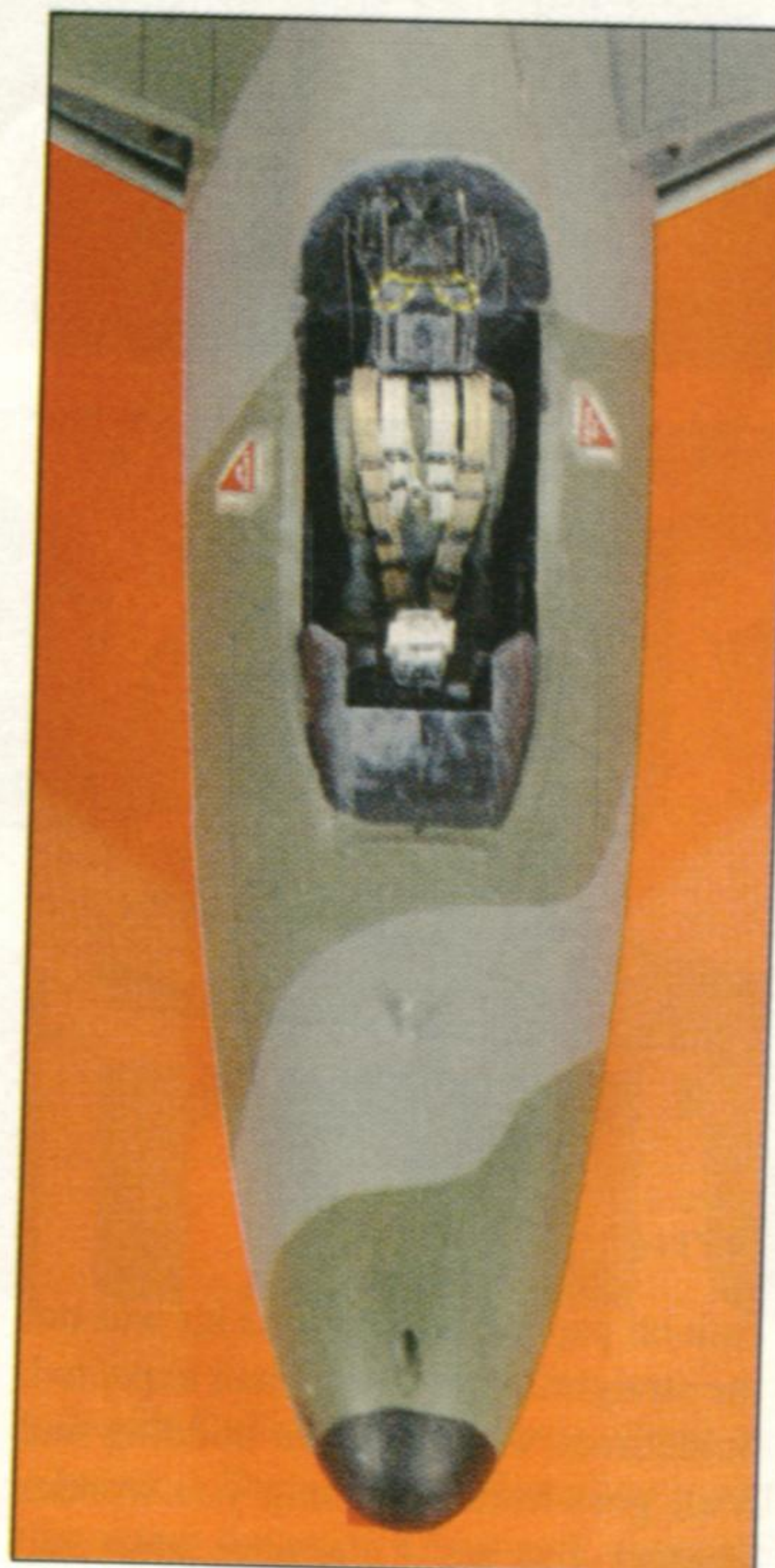


and lower wing sections, you either had the leading edge aligned with the fuselage recess or the trailing edge, but never both at the same time. This meant that the starboard wing refused point blank to line up with the port one. Either it was down about 15 degrees or it was up about 20 degrees. After 45 minutes of trying to solve the problem and with my spirit almost broken the Hunter decided to kick me when I was down. The intake scoops broke away from the centre section (photo 6 - Oops !) So with a song in my heart and a smile on my face I walked away...

Wing fit, take 2...

Having rebuilt the intake scoops I tackled the wing again. Yes, it's on. Oh, no it's not. After much wiggling around of the wing there was a little click and it seemed to hold. "Holy Hunter wing - Quick Batman, get some Batglue". (that's Holy Hunter, not Holly Hunter, although she would have been very welcome in my study at this point). Once dry, more plastic strips were added to plug the (new) gaps and then the filler applied.

The kit required filler in the usual places eg. along the spine, underside centre line etc. For the fuselage, tail and tail planes the fit was very good. This made the problem with the wings even more frustrating. The instructions state



wing I primed the aircraft with Halfords grey primer. A bit more gentle sanding to remove some lumps and "crack". Structural failure of the starboard wing and I am now looking in the dictionary to find some new words to describe my feelings...

aircraft creaks from time to time but, so far, so good. It did, of course, leave me with an awful join which I covered up as best I could.

So, what next? Valium? No, let's build the undercarriage. This is pretty good, straightforward and hassle free. The only thing I don't understand is the pre-occupation with finely detailing the hydraulic jacks that litter the underside of the aircraft. Because of the injection process for kits you end up with a 3mm long jack with a 2mm sprue gate. It all gets a bit fiddly. Surely some of this tiny detail could have been incorporated on the gear doors or something? Several parts broke or disappeared across the room or stuck to me. Most ended up being replaced by bits of stretched sprue.

Painting

Next step was to spray the undersurface 90% Tamiya Chrome Silver with 10% XF-2 Flat White. The flaps were detailed and then weathered as per the wheel wells. Ooh-aah, they look sexy. A definite plus for the kit. You just have to have them dropped open, leaving them closed would be almost criminal.

The undersurface was masked off and then sprayed with Aeromaster Dark Sea Grey from the Warbird Acrylics Range. After hours of careful masking RAF Dark Green was sprayed

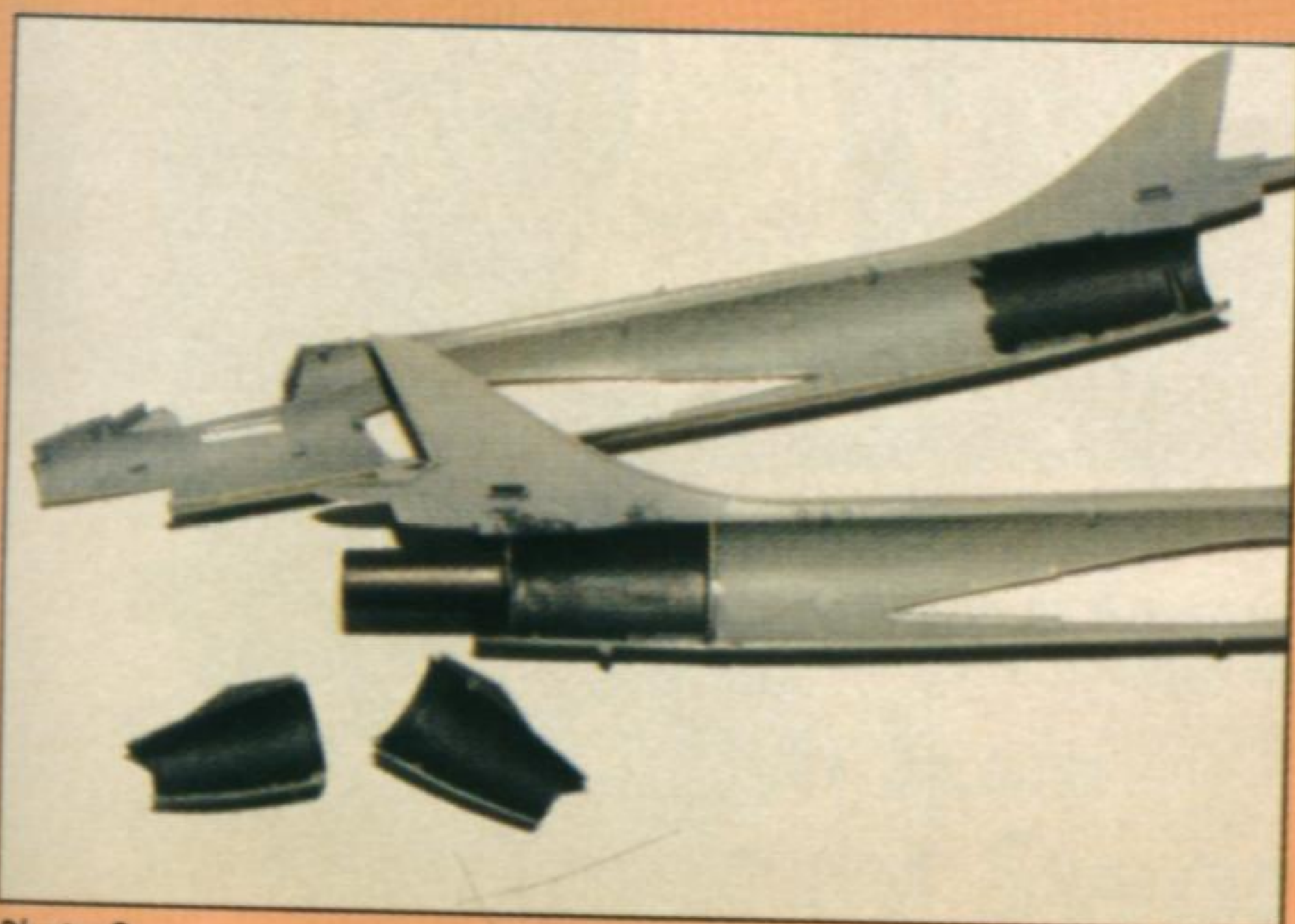


Photo 3
The exhaust area once suitable painted

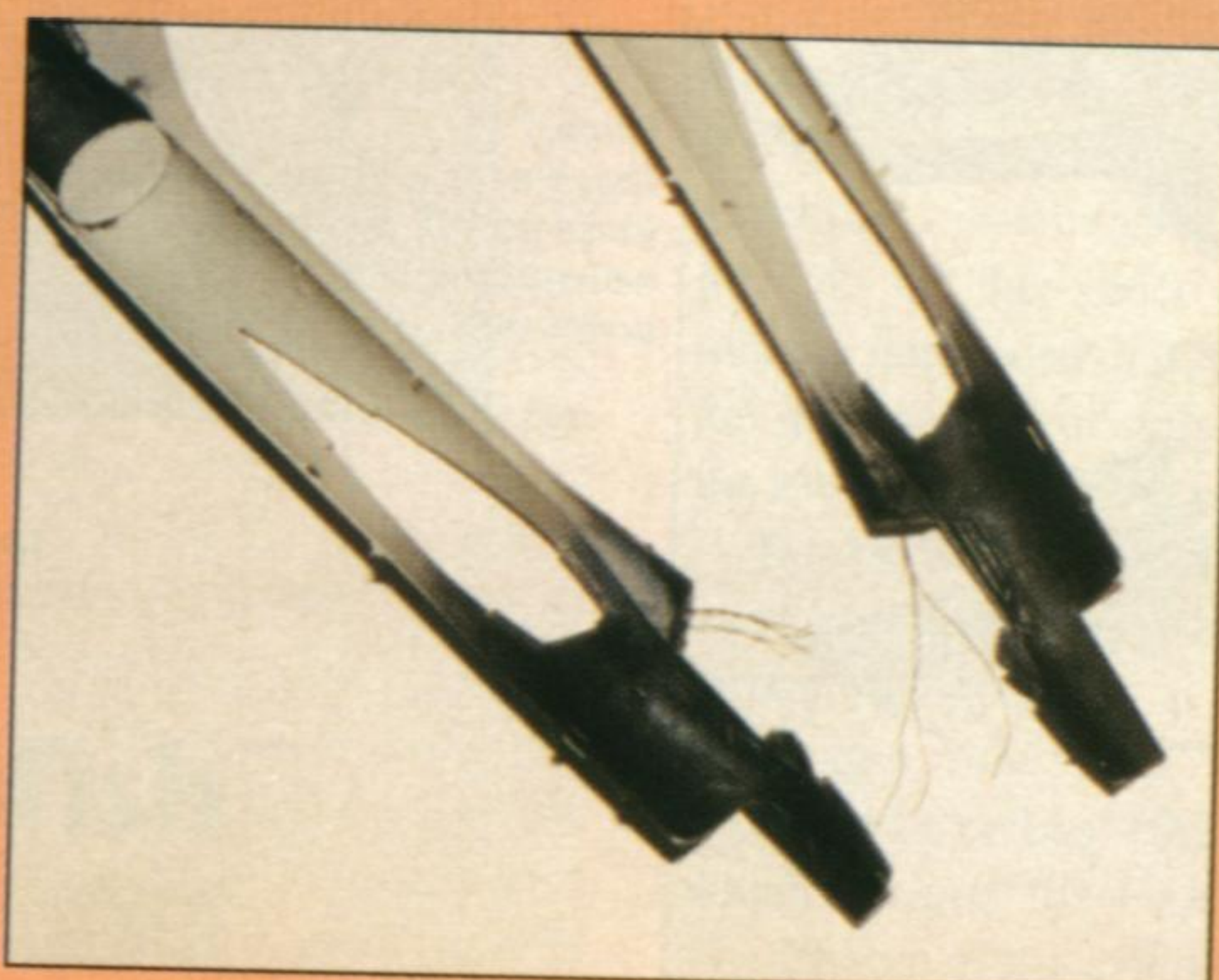


Photo 4
Cooper wire was fixed into the rear cockpit bulkhead to simulate the mass of wiring which is visible in this area

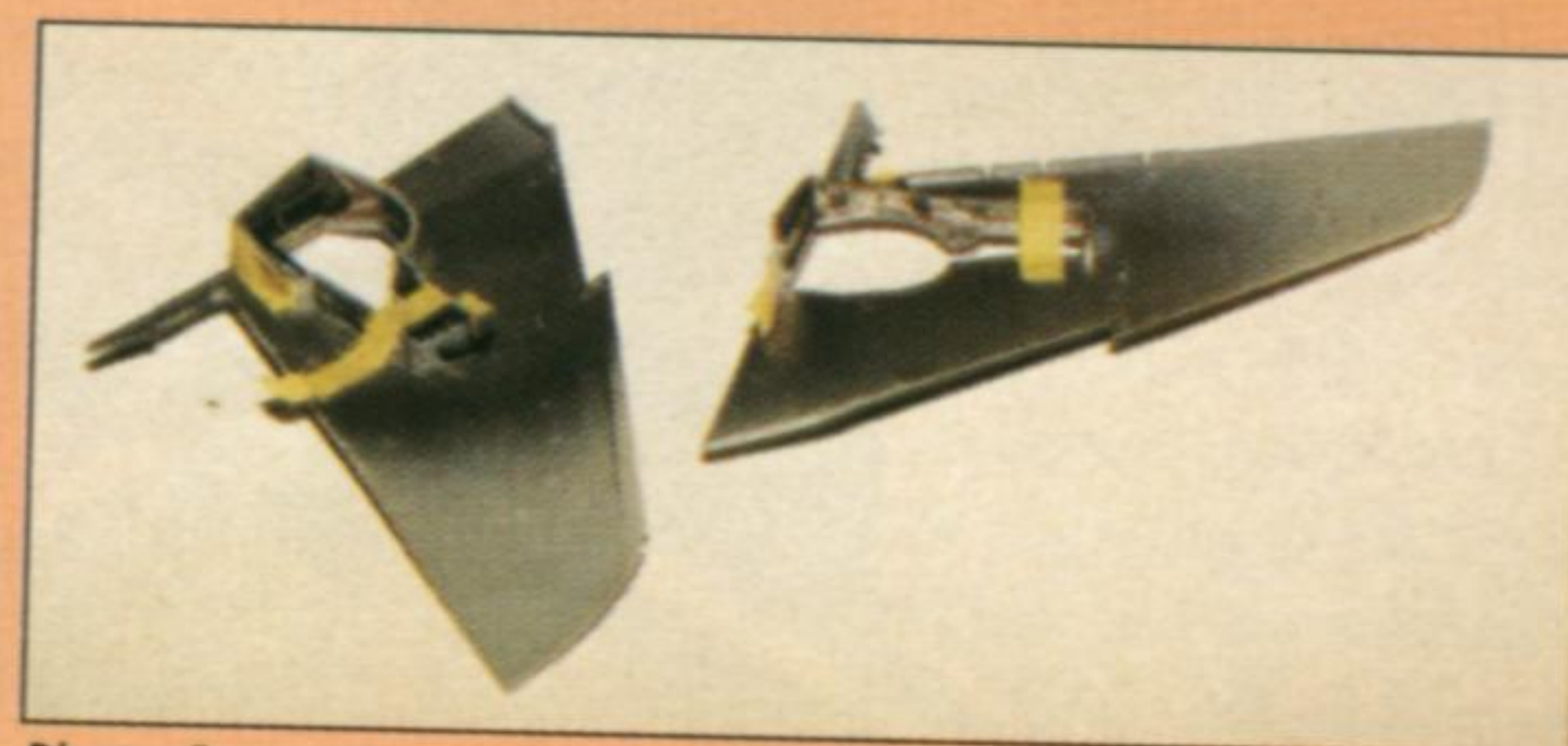


Photo 5
Detailing work in the undercarriage bays



over the top. I find the Aeromaster acrylics superb through the airbrush and usually require 3 gentle coats of each colour for a good, smooth finish. As I was gently taking off the masking tape I could hear the wings creaking ominously! Once all the tape was off the Hunter was starting to look a bit better (photo 7).

A good layer of gloss varnish and it was onto the decal bit. The decals are very thin and glossy. I had purchased the new set from Xtradecal but Nikki, my wife, preferred the colours of the original Academy set so I used them instead. Adhesion is initially good but the first couple, applied without any setting solutions, did lift on some edges. The rest were all applied using Micros Set and Sol without any hassles.

Just the last few bits to add. Oh, ah. The new Aeroclub seat does look good (photo 8). I added some straps from the Reheat ejector seat harness set and the bang handles are from an etched fret by True Details. Just the nav. lights and pitot tube to position then it's canopy time. I used the new Aeroclub vac-form canopy which is a better shape than the original Academy one. I should have added a mirror on the inside canopy framing. I'll add that later.

Conclusion

I suspect that I am going to have to choose my words very carefully here.

Over the past 12 months friends and colleagues have advised me that 1/48th is the scale to be in and, given the aircraft types released or due for release, this certainly seems to be the

building the Hunter, the comments and feedback were quite interesting. It seems a number of people had problems, mostly involving the wing to fuselage join. Yet all have been so ready to defend and protect the kit "The wings didn't fit but it's only £14 so you can't complain" Well, actually, yes you

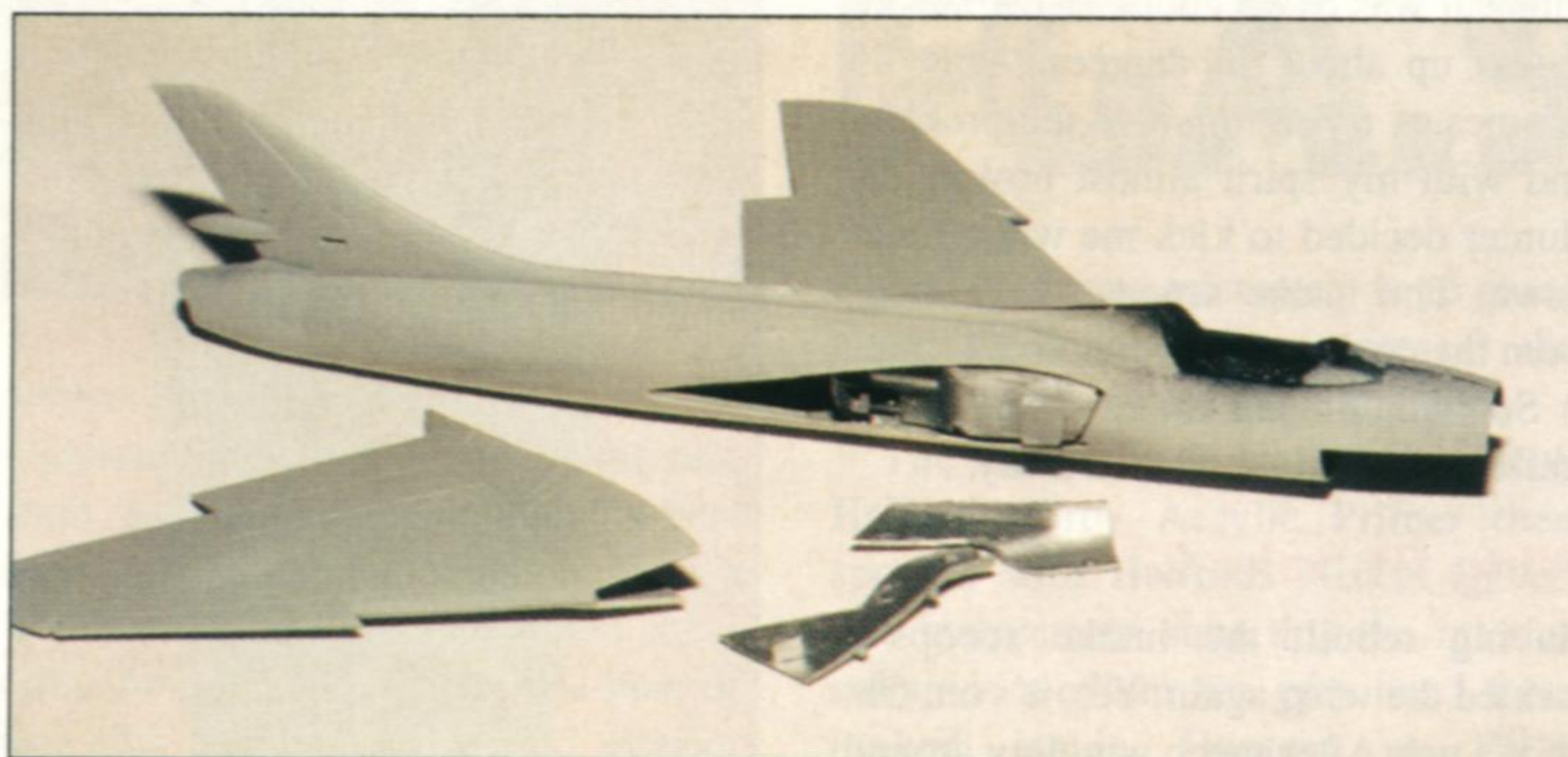


Photo 6
Oh *#&g*!!

case on paper. However this kit was not the straightforward one I had expected. Sometimes when you are building and it all goes horribly wrong you wonder whether you are a complete idiot and that the failure reflects your modelling skills (or lack of !). However having spoken to a number of people about

can complain but I guess most choose not too. As well as the problem with the wings, some of the parts had prominent sink points from the tooling, especially the undercarriage doors.

Also, the kit used a plethora of small detail, some of which meant a very small surface area for gluing. It seemed sensible, in some instances, to interpret the structure or mechanics of the aircraft in a different way and use a different technique for achieving the detail.

In the end my feelings ran hot and



Photo 7
Together once again (OK, thrice again), the model was sprayed silver underneath

Photo 8
I went to town a bit on the new Aeroclub seat

cold with this kit, usually for the wrong reasons. Many people had talked about the Academy Hunters and so my expectations were high. I suspect that I was a little disappointed with what I ended up with. Don't get me wrong, the kit looks fine now that it's complete, and it will certainly end up on the model shelf. I believe that, ultimately, this is a kit to take your time over. If you like to kit-bash and want to build it quickly, then it may look slightly second class alongside the Tamiya P-51's for example.

Will I buy any more? At the moment it is a resounding "NO". I guess one of the problems was the time constraint. Now I know what I am letting myself in for, perhaps in a couple of months I might change my mind, purchase one and spend a long, long time building it. Of course it would have to be in a lovely raspberry ripple scheme...

My thanks to Academy for the review kit.

Steve Benstead

Postscript

As you can tell, looks can be deceptive. All kits look nice in the bag (OK, I take it back, I can think of a few that don't), but when you actually start working with them they give you hell.

To be fair to Academy (No, I am not going to say, 'you can't complain for £14.99'), they have given modellers what they have wanted for years, an injection moulded kit of the Hunter in 1/48th scale. As always there will be those that love it and defend it, and those who hate it and decry it.

My final word therefore is this, Steve has made it and told you what he found, be forewarned when you make your kit and take your time with it.

My thanks to Toyway, the UK importer for Academy, for the chance to review this kit. Our thanks also to Aeroclub for the new cockpit tub, seat and canopy which arrived just in time for use in this feature.

- Ed





Stringbag Unlimited!

David Batt reviews
Model Design Construction's
first full kit release,
a 1/48 scale Fairey Swordfish

After several months trapped in the Channel port of Brest, the battlecruisers Scharnhorst and Gneisenau had been joined by the cruiser Prinz Eugen after the Bismarck action. History shows that the entire British military was caught napping when the three ships sailed with a massive escort of destroyers, minesweepers and S-



This spread of the kit contents shows only a few of the major parts

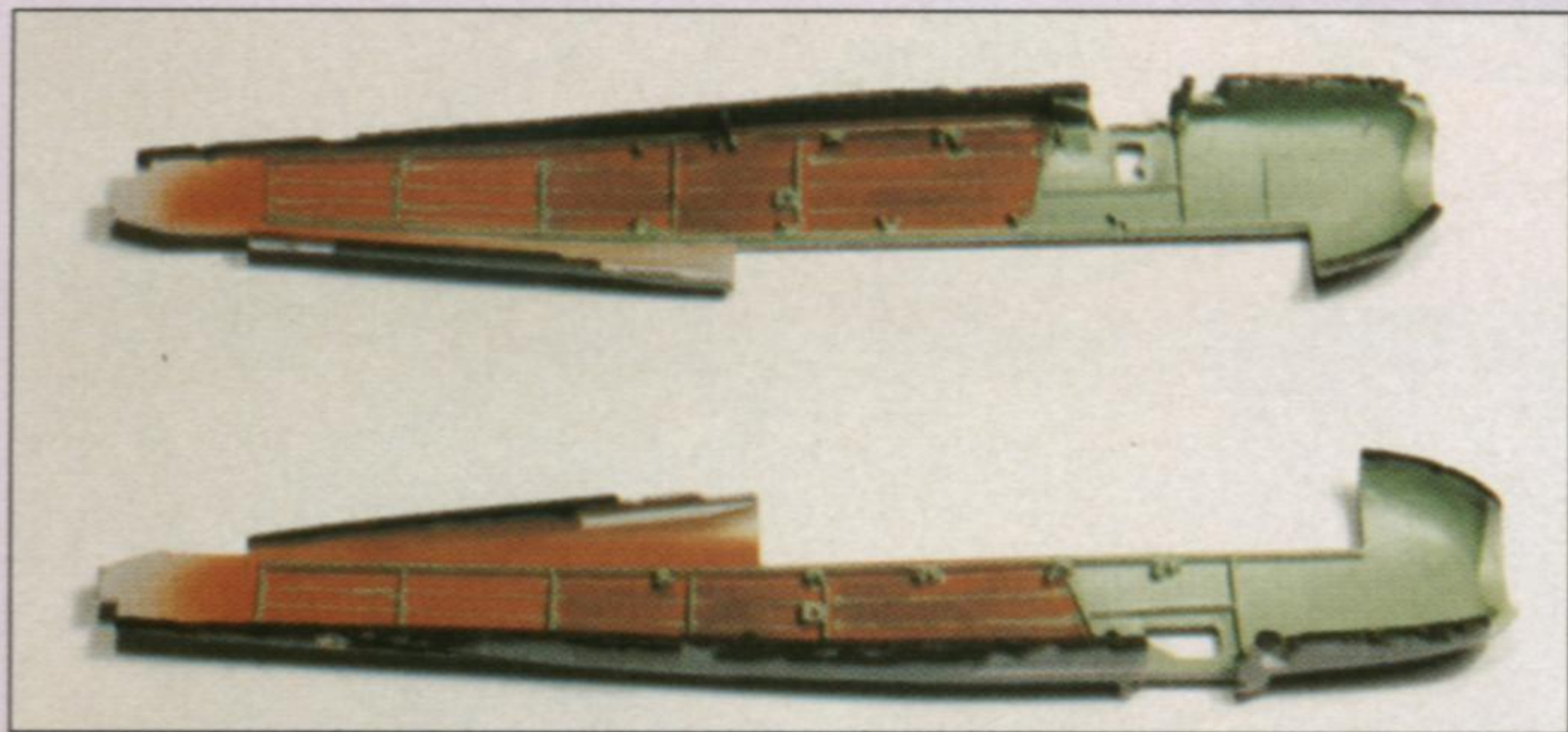


**1/48th Scale
Fairey Swordfish**

Littorio, Dulio, Vittorio Veneto, Conte de Cavour, Dunkerque, Richelieu, not forgetting the mighty Bismarck, these are just a few of the Axis capital ships which had cause to rue the day the antiquated Fairey Swordfish clattered slowly towards them. Best known of the obsolescent aircraft the Fleet Air Arm was equipped with at the beginning of the war, the Swordfish's flying activities; take-off, cruise, maximum and landing, were all covered by a twenty knot (say 24 m.p.h.) speed range. A fabric covered biplane powered by an engine of less than 800hp, it was a remarkable choice for a front line aircraft. Nonetheless, it more than fulfilled all the varied roles that were initially demanded of it, which covered all the designations of military aircraft with the exceptions of fighter and transport.

Taranto and the Bismarck chase were high spots in the Swordfish's career as a torpedo bomber but it was withdrawn from this role after the debacle of 'Operation Cerebus' (the Channel Dash), which became the FAA's equivalent to The Charge of the Light Brigade.

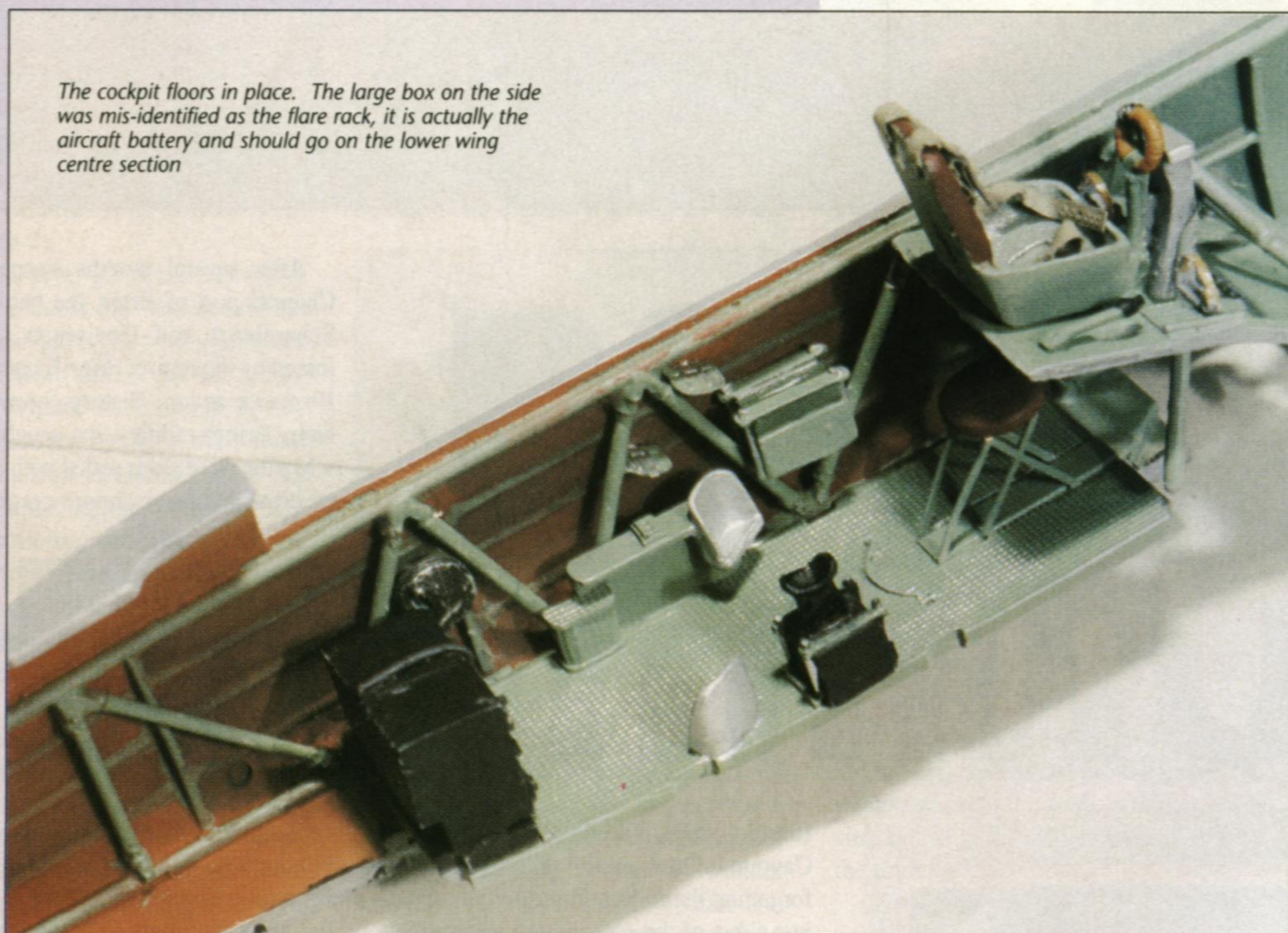
boats at 0020 hrs on the morning of 12 February 1942, even though there had been several warning signs. For example, the ships had been idle for months and then suddenly started intensive sea trials for the previous week, while there had been determined jamming of the British radar network for many hours before the ships had sailed. Alas, from the Allied standpoint just about everything that could go wrong did. Both ASV-equipped Hudsons on picket duty suffered equipment failures and were forced to return. RAF Spitfires on a normal reconnaissance spotted the flotilla but had to maintain radio silence until they returned, delaying action still further. Somehow their report was interpreted as a group of S-boats engaging Royal Naval MTBs, which led to a drastically ineffective response when armed Spitfires taking off to give the gallant MTBs a helping hand flew straight into a massive air umbrella of Bf 110s, Bf 109s and FW 190s from JGn 1,2 and 26, no less than 176 aircraft (though not in the air all at the same time!).



Construction starts with the fuselage halves. Note the black paint which will help the filing back of the mating edges



No amount of fancy moulding techniques and clever painting methods can match the appearance of separate diagonal braces with longerons moulded into the sides



The cockpit floors in place. The large box on the side was mis-identified as the flare rack, it is actually the aircraft battery and should go on the lower wing centre section



When the missing flare rack was supplied it was fitted into the completed cockpit

In the middle of all this excitement, shortly after noon, the six Swordfish torpedo bombers of 825 Sqn led by Lt-Cdr Eugene Esmonde made their historic attack. The Spitfires were brutally punished while attempting to keep the fighter escorts off the attackers, a hopeless effort. Esmonde, who only the day before had received a DSO for his part in the Bismarck action, was shot down before he could launch his torpedo, and his comrades were lost without any effect being made upon the flotilla's progress up the Channel. Only four of the 18 airmen survived. MDC have noted this action with two of the 15 options on the decal sheet, Esmonde's machine (W5984) and that piloted by Sub-Lt B. W. Rose, one of the survivors.

Following this the Swordfish became a scourge of U-boats while flying from escort carriers and MAC-ships (flat-topped merchant ships) and during this period acquired its enduring nickname when an imaginative war correspondent compared the Swordfish's carrying capacity to that of a housewife's string shopping bag, another piece of old

resin casting to modelling which produce mouldings of superb quality, although they do employ the most expensive casting compounds.

As it appears the kit is most unprepossessing, a large and very sturdy cardboard box with a photocopied illustration on the lid which is intended more to identify the contents than sell them. I would estimate that more than 90% of the box's volume is taken up by expanded foam particles. In a world where we kit bashers regard a box full of bits as a better deal this initially seems to be a bit off, but in truth this situation is ideal for a kit that is intended all but exclusively for the mail-order market.

The major parts for the fuselage and upper and lower wings are individually wrapped in sheets of bubble packing while the massive quantity of smaller parts are separated into basic groups (tail and control surfaces, armament, engine, etc.) each in its own 'zip-top' plastic bag. This is a neat idea, for parts can be taken out a few at a time and the bag re-sealed.

I imagine I followed the majority view when this kit was first announced along with its price of £75.00. I muttered blunt comments and a cursory look at the major parts on display at the '96 Nationals did nothing to shake my prejudices. However, a proper examination of the review kit straightened out these pre-conceptions. The surface detailing alone is like nothing I've seen before. You haven't just got beautifully restrained fabric sag between the ribs, you've got the rib tapes and the rib stitching. Below the lower wing you have got an array of scale size mounting lugs for the various bomb racks and rocket rails, etc., while the fuselage shows the distinctive reinforcing rings around the fixings on the removable fabric covered panels. The Swordfish was a very 'agricultural' looking aircraft and upon initial sight I knew the manufacturers had done a tremendous job of capturing this air.

Looking further there seemed to be hundreds of other resin parts, the great majority already cleaned up and ready for use, plus a large sheet of etched brass, a slightly smaller sheet of etched stainless steel, a huge bag of cast white metal bits, sheets of decals and one of clear plastic, and no less than 24 A4 pages of instructions. So far so good, time to get started.

Where do you begin!

When building multi-media kits in the past (which have in the main included injection moulded airframes) I've been comfortable with preparing and undercoating a handful of metal and resin in the early stages and then treating everything as if it was a normal plastic kit. With the MDC Swordfish there are just too many pieces to go missing and it's best to work in pre-determined stages, preparing a limited number of parts and following them through to assembly before starting the next stage. You can speed things up a bit by starting up a 'rolling' production line so that the undercoat for the next stage can harden properly, but at £75.00 a throw why not take your time and get the most out of this orgy of model making.

fashioned technology that expanded whenever last-minute essentials had to be crammed in.

Apart from a rather dated SMER offering the Swordfish has been poorly represented in 1/48 scale and Model Design Construction are to be complemented upon this long-awaited release. As I understand it, the Swordfish was being worked up by Tim Perry's PP Aerokits and the project included the individuals involved in the present company. Due to the internal and external complexity of the subject and the demands of its surface detailing the entire model had to be based upon resin castings, for even the highest standards of vacuum-forming (the sort of standard that Tim's existing customers were used to with his Firefly kits) would be inadequate.

In producing the kit MDC have introduced labour-intensive methods of

First task was to make sense of the way in which the components are separated into bags then some of the more obscure parts could be identified. As the kit does not have the mainstream kit's lettered sprues with identifying numbers the builder has to rely upon his own knowledge of aircraft and the (at present) rather indistinct photos to identify the parts. Anyone who was building Airfix kits out of plastic bags more than thirty years ago will know what this is like.

carefully examine each piece for mould lines and flash as it is identified (as you would for even the latest release from a mainstream manufacturer) before each is washed with a mild detergent solution and rinsed well before being fixed to a suitable surface for priming. I find that masking tape folded back on itself and fixed to offcuts of balsawood is ideal for this. Sorting the parts out at this time ('those are Grey-Green, those are matt black,' etc.) means you can pick up the



Parts for the beautifully detailed Bristol Pegasus engine

Alas, this showed up slightly slack areas within MDC, one being their checking out of the contents. I had a surplus of joysticks and intake manifolds but a lack of ASV aials and flare racks. A 'phone call to MDC had the missing parts on their way, but it was a bit of a hold up. However, I must stress that MDC are professional model-makers attempting to produce their version of a definitive kit, not long-standing kit manufacturers turning out yet another aircraft kit (two bits for the fuselage, three bits for the wing, and so on). There are those who say there should be no excuse for a mistake. Me, I can forgive a lot if the offenders' hearts are in the right place. MDC are consummate professionals in the business of modelling and are making a tremendous effort for their customers. Compared with this an accidental mis-counting of wing struts or the like by an over-worked packer is pretty small beer. A 'phone call to MDC will have the replacement parts on their way to the builder, though I would suggest that MDC start enclosing numbered 'warranty cards' in the kits to separate the genuine kit purchasers from freeloaders trying to get their hands on the neatest VGO or Peggy engine you'll ever see in your life.

The second problem was the quality of the instructions, which were neither grammatically nor graphically clear and as a result some parts were initially misidentified. This was serious problem for unlike a mainstream kit one cannot rely on parts that basically guide themselves into accurate alignment with only nominal guidance from the builder. However, I understand that MDC were actively working on improving both aspects of the instructions as this review model was being built, so by now revised instructions may be included in the kits.

The longest journeys...

...are started by taking the first step. In this case it is to work stage by stage and

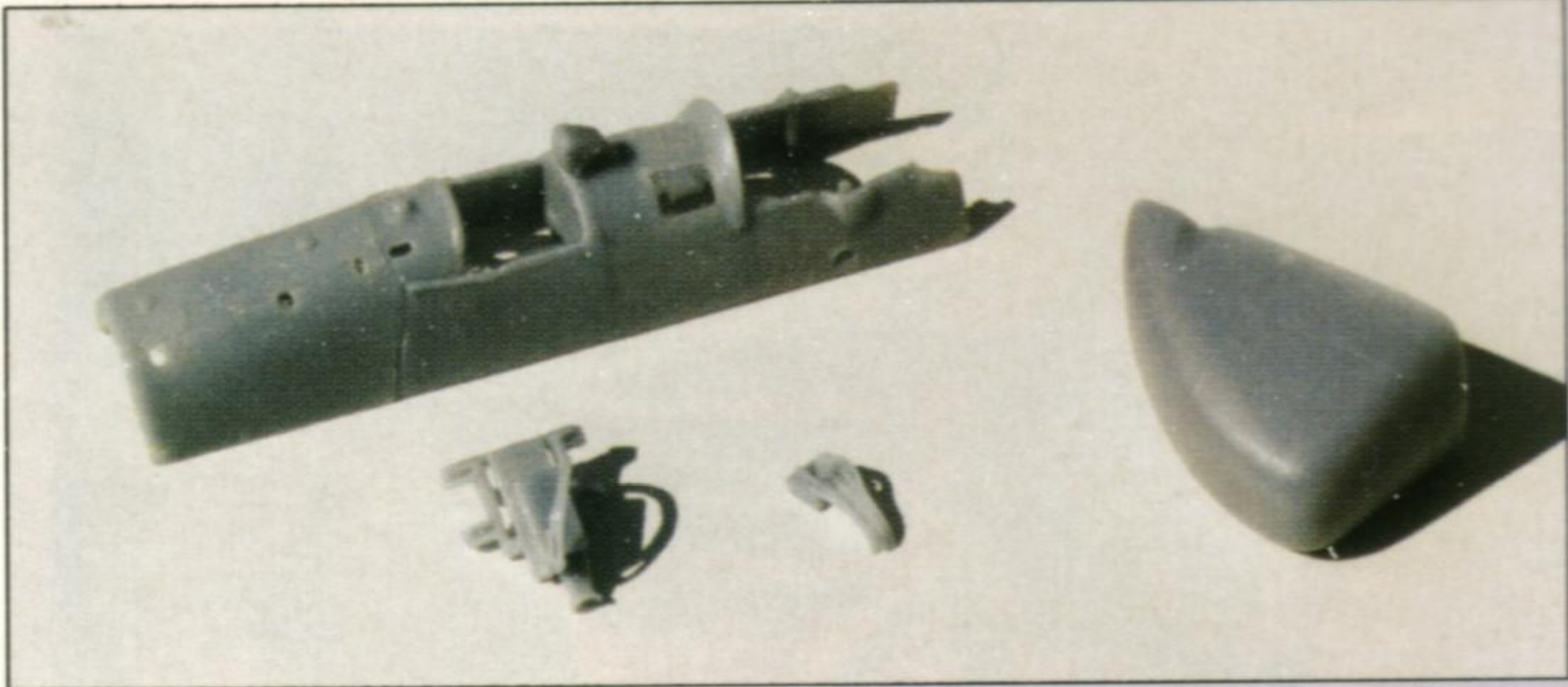
These two resin and single etched parts complete the engine parts count

airbrush as soon as the spray primer is dry and the parts have been re-checked.

A couple of major flaws were found here, both involving the leading edges of the wings. A substantial smear of Milliput epoxy filler put the matter right and the surface was restored with jewellers' files and a gentle sanding with wet-and-dry paper.

The fuselage was completed in four stages; the lower fuselage with structure, the pilot's seat and its support, the inner deck and the upper decking. There's more modelling work to be found in this production of a sub-assembly than you'd find in many entire mainstream kits! Twenty eight resin, 24 etched brass and two cast metal parts, plus five parts to be cut from clear sheet and no less than 20 pre-cut lengths of plastic rod. Like the Avenger from Accurate Miniatures (another 'quantum leap' in manufacturing, but that time for the mainstream market) this Swordfish model provides an education into the real aircraft. I never realised there was a fully equipped bomb-aimer's position right under the pilot's seat!

Bringing together the fuselage halves produced an awkward joint, for there was a slight distortion in the parts which had to be straightened out with hot water. Afterwards the join line was tidied up

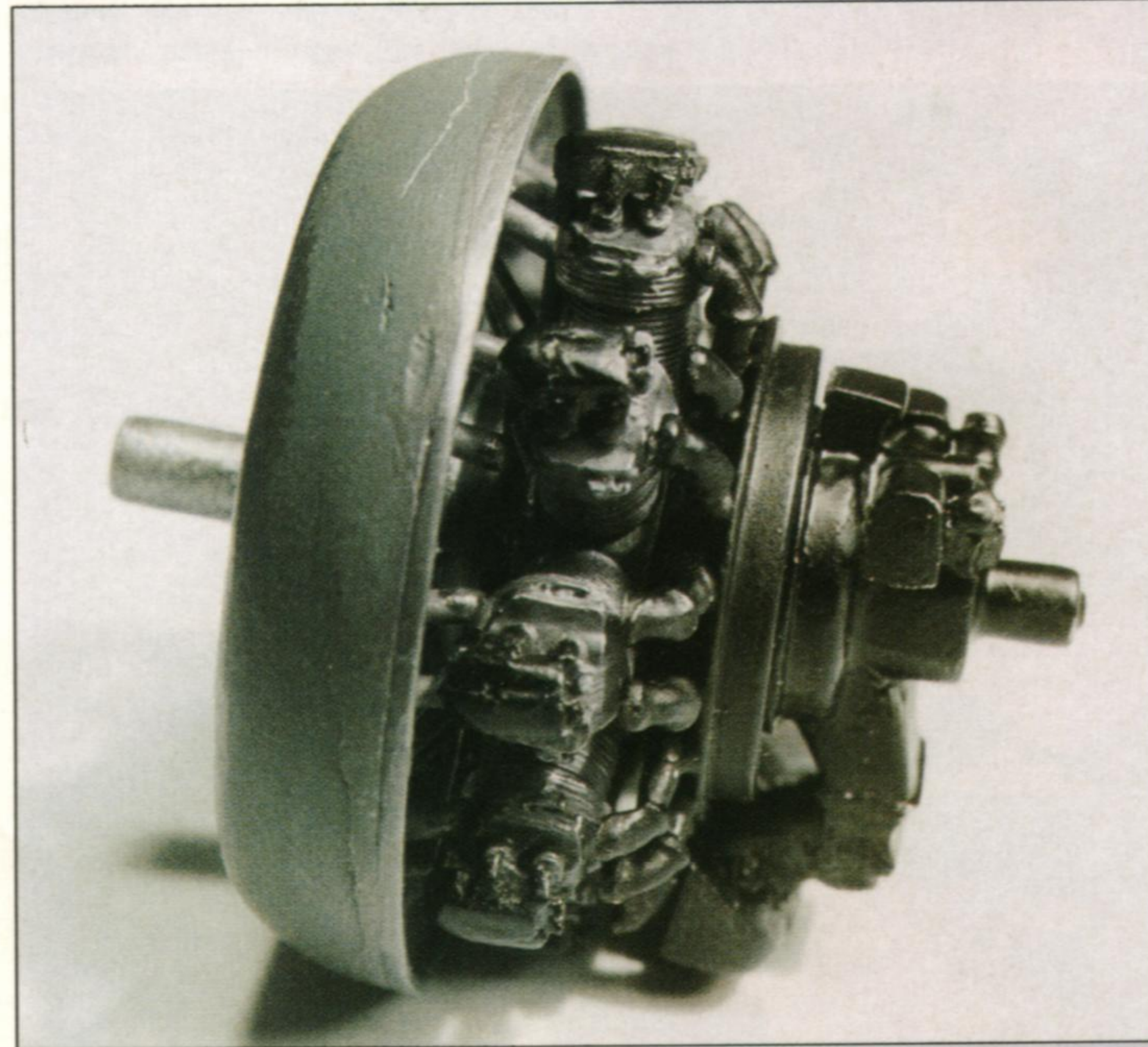
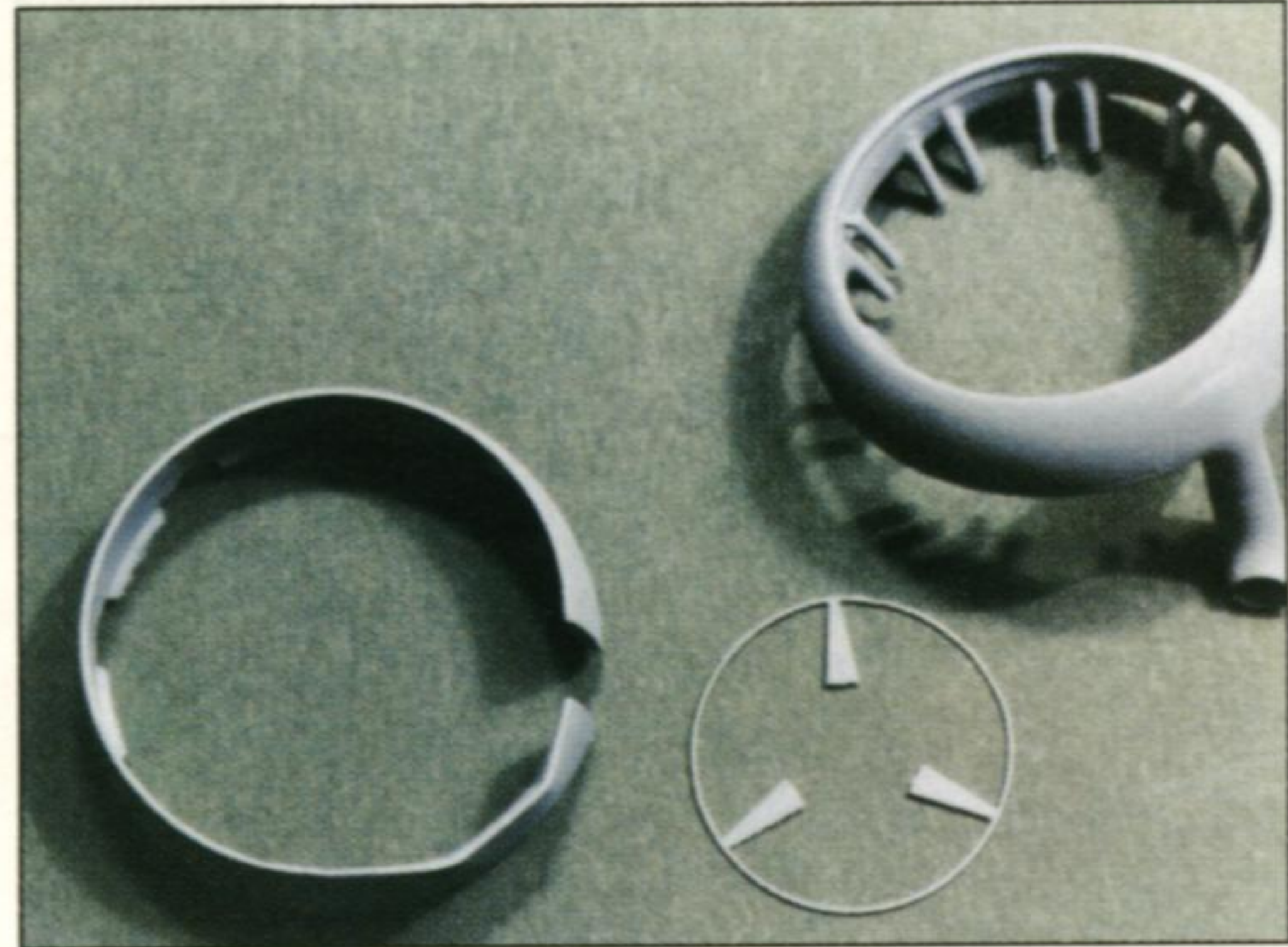


These alternative parts are supplied so that an accurate Mk III model can be built

with epoxy filler, which completed the only join in the entire kit which needed post-operative attention.

MDC provide each of the instrument panels as two etched brass items, the backing piece having an etched representation of the dials themselves while a piece cut from clear sheet goes between the sheets to provide the glazing. I used this method to prove the kit but wasn't entirely happy with the result. With hindsight I would replace the back etching with a piece of gloss varnished plastic card and then use Re-Heat instrument decals. The front etching could then be fixed in place with Humbrol Clearfix, being lowered

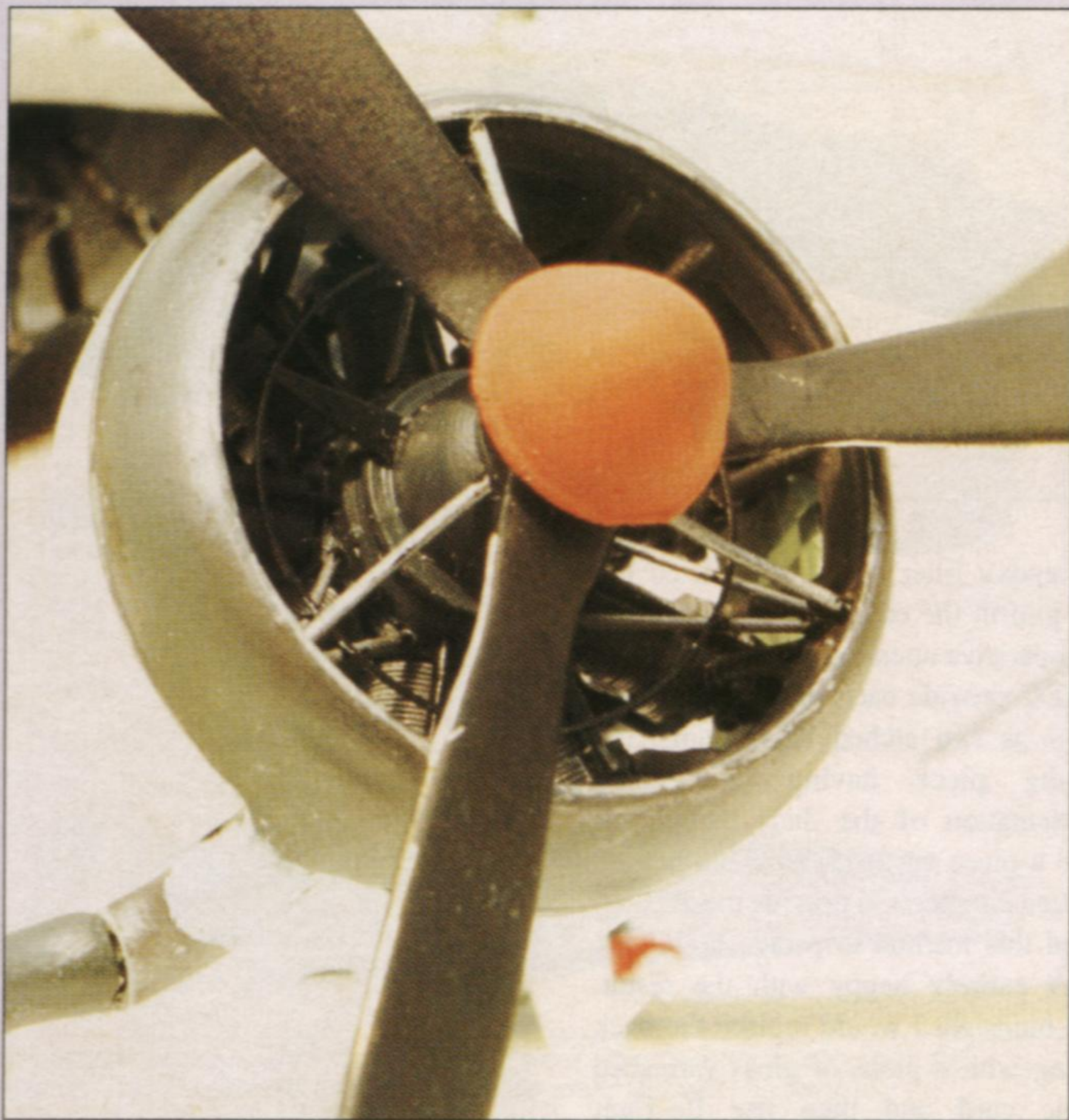
Partially completed, with the exhaust collector ring ready to be connected to the cylinders



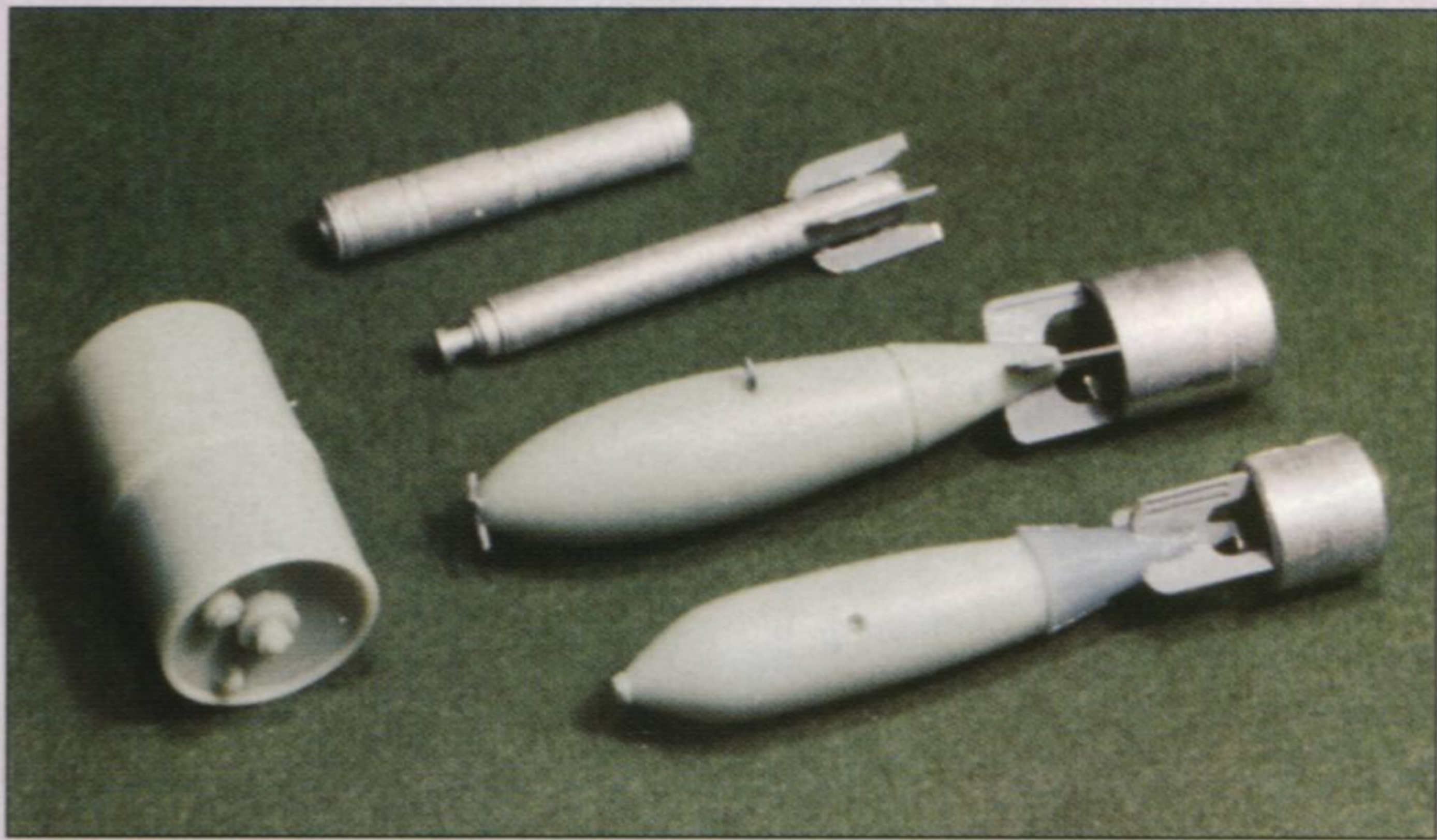
Once installed the detailed rear of the engine is permanently hidden, although it provides a perfect basis for a servicing diorama with the fuselage access panels removed

carefully into place so that the adhesive only bubbled through the instrument holes and did not spread out onto the panel itself. However, this would be a personal choice for this technique does not appeal to all.

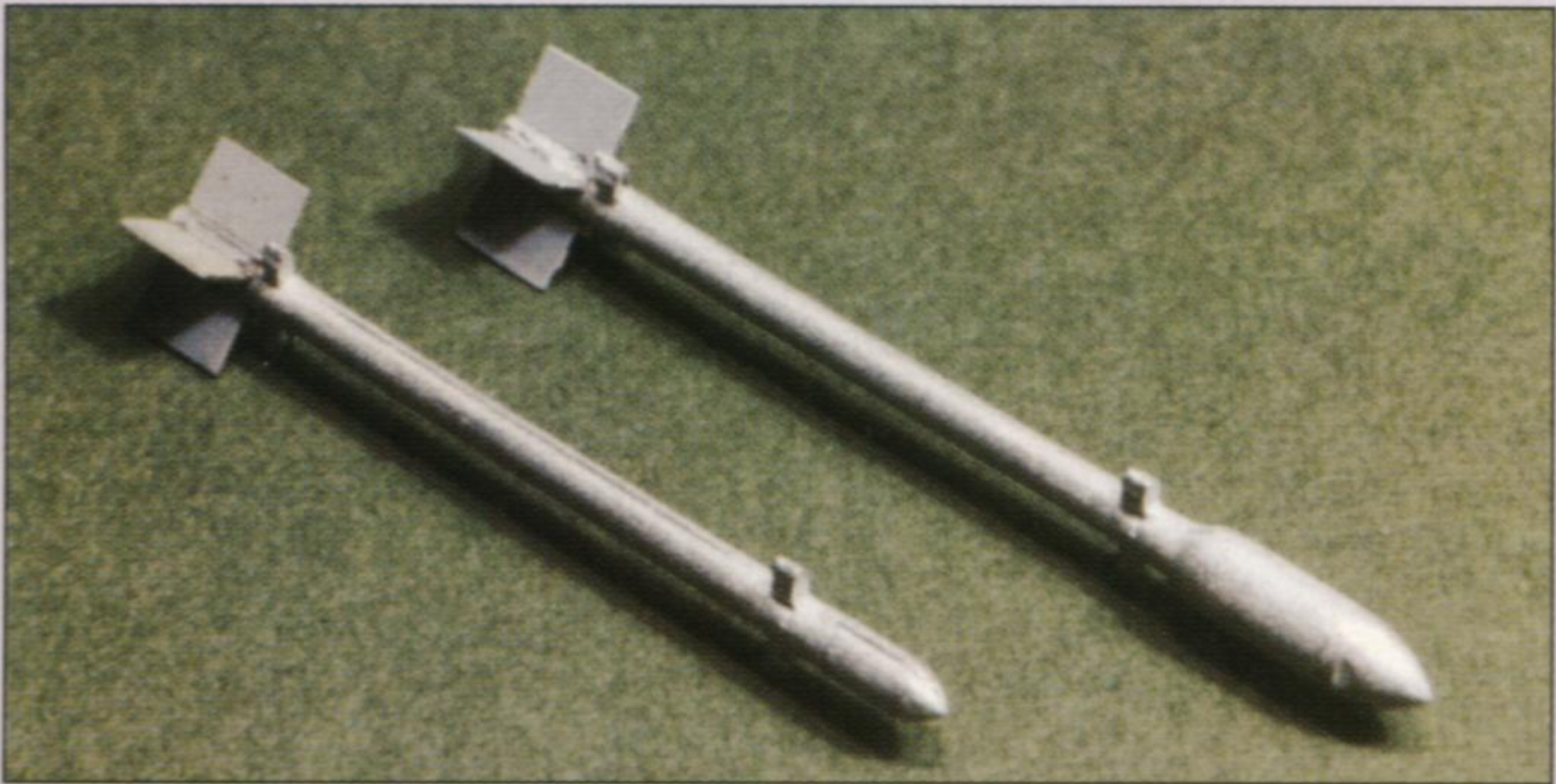
After this the addition of the lower wing and the preparation of the tail



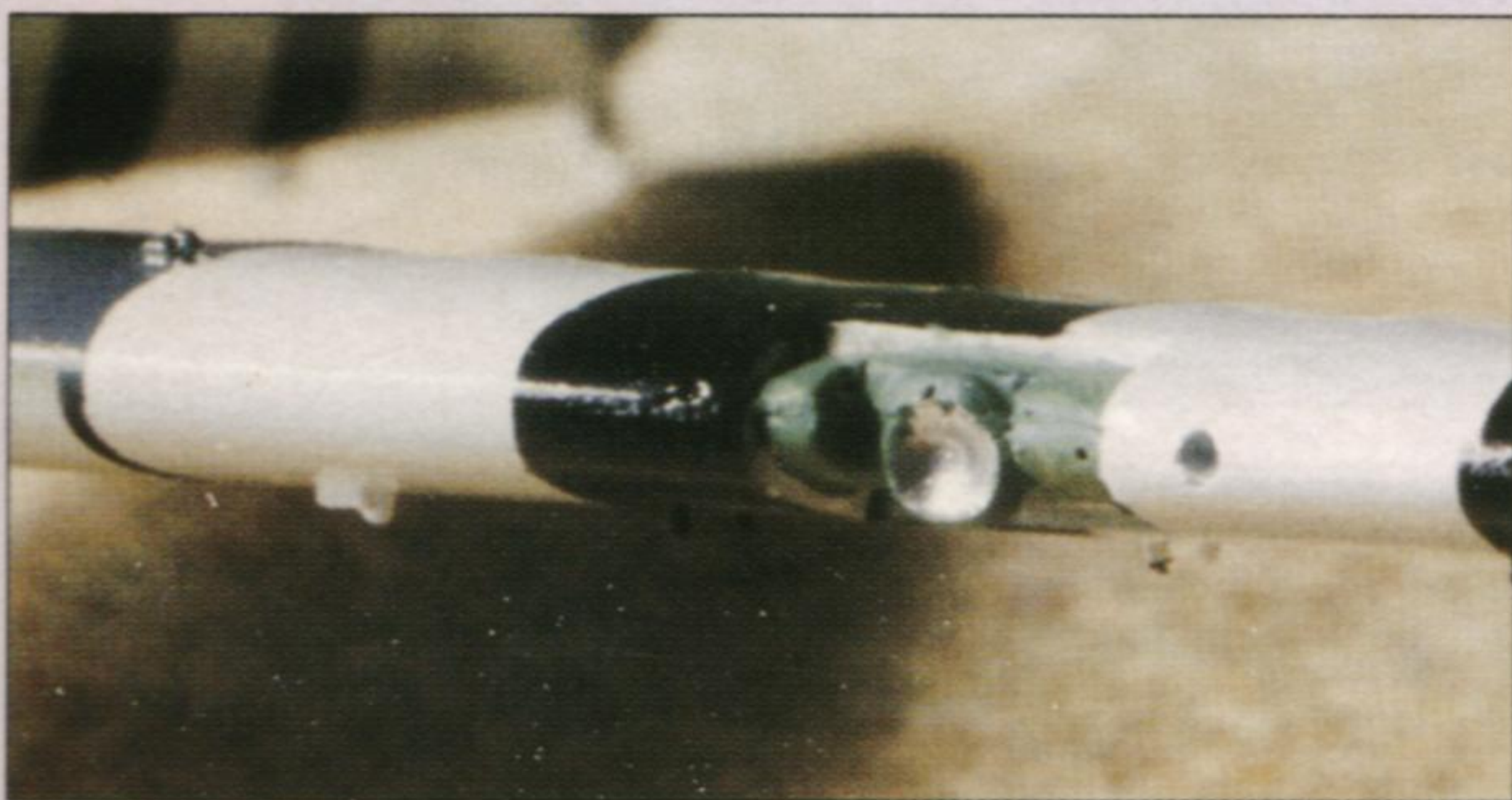
Detail view of the engine in place. All kit standard, nothing fancy needs to be added



The kit's under wing stores include depth charges, smoke floats, flares and 250 and 500lb bombs



Two types of rocket bodies are provided, 60lb HE and 25lb AP, but only enough etched fins for nine rockets to be completed



One of the few improvements that can be made, drilling out the landing light lens so that it can be filled with PVA glue

surfaces, upper wing and struts seemed quite commonplace, but the quality still impressed. All flying and control surfaces are cast from resin while struts are white metal. The control surfaces are all separated and the knowledgeable will appreciate the provision of correctly handed ailerons and elevators. Fit on these surfaces is so good that they can simply be pressed into place and remain movable, but it's best to secure them with a touch of normal cyanoacrylate. The necessary use of so-called 'super glues', both liquid and 'gel', for construction was the only down-side of this kit as far as I am concerned, for I loathe the stuff and regard it as an invention of the devil. From time to time I felt myself developing an abiding and unnatural attachment to the model but no matter - after a few days the patches of skin dried out and could be sanded off with wet-and-dry.

Colouring up quickly

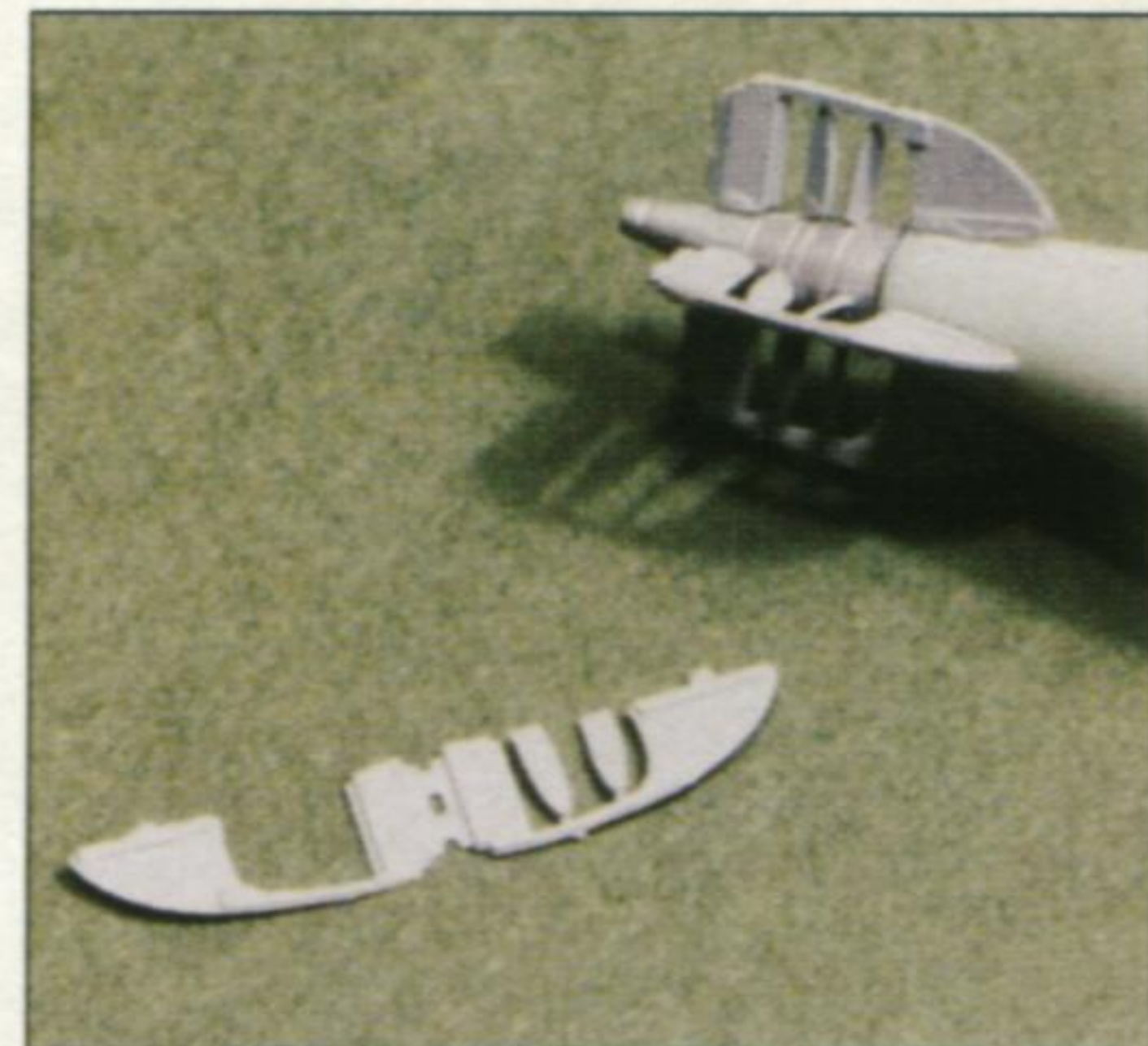
The biplane layout of the Swordfish suggested that final painting be completed at an early stage while the model was still quite fragmentary. The choice of subjects supplied by MDC is extensive, covering the entire history of the Swordfish Mk II and III including RAF and Merchant (MAC ship) service. Although there are two aircraft from the Channel Dash there is no representation of the Taranto or Bismarck actions, so the torpedo bombers are not as well represented as they might be. However, the up-side of this is that the Swordfish's 'stringbag' era is well covered and after some difficulty my selection was an 816 Sqn aircraft in day finish flying from Perranporth in Cornwall at the time of D-Day while attached to RAF Coastal Command.

The cockpit interior was masked with damp tissue while the windows to the bomb-aimer's position were masked with Maskol. Following this the completed parts of the airframe (fuselage assembled to lower wing, upper wing and tail surfaces) were sprayed with white Halfords acrylic undercoat to suit the final scheme. This inevitably showed up building errors which had not been apparent against the pieces' natural grey colour. After fixing these the painting could start in earnest.

I assembled the undercarriage at this time to give the model something to sit on and found the only real error in production. It appears that the pressures and temperatures required to achieve MDC's high standards of finish can from time to time allow distortion in the cast metal parts, which in this case appeared in the shape of an over-long undercarriage strut. This gave the model the appearance of an old man with gout, with one leg stuck out at an angle, but it took less than an hour to identify the problem and to file back the offending part. I discussed this with Brian Fawcett and it appears that future kits will have (in addition to much more positive instructions) a developed view and dimensions of the struts so that the builder can check the parts.

With this matter resolved the painting could start in earnest. Humbrol Gloss White was applied overall, which

hindsight suggests should have been followed by a two-day drying period. The black D-Day stripes were masked off, masking tape being marked out with a ruler and pencil but cut freehand to allow a little shakiness in the finish. Note how the outer white bands are 'picked out' from the background white with a thin black line, while on this very specific example the stripes on the lower wing are much further in than usually seen on a Swordfish. A further black panel on the underside of the upper wing centre section was masked out with tape, as was



A neat solution to the problem of producing torpedo propellers is seen here

the back bit of the engine cowling. These areas were then sprayed in with Humbrol Gloss Black. The fuselage top forward of the cockpit was also sprayed black, which (contrary to the cowling) had a low and soft edged demarcation, then the centre section struts and the inner sides of all the interplane struts were also finished in black.

After this it was a doddle to finish off the upper surfaces of both wings, the tailplane, pilot's headrest and a tiny area of the upper decking between the cockpit and the fuselage striping with camouflage colours. The only hard masking required was along the upper decking, for that between the camouflage shades was slightly soft. I used Xtracolours X-5 and X-25 for the Extra Dark Sea Grey and Dark Slate Grey camouflage and then the kit's decals were applied.

For the record these are superb, with a glossy finish and superb register. Colours have been matched to original paint chips and an extra pair of 'faded' upper wing roundels have been provided, though to be honest I can see little difference between these and the standard pair. All the decals settled down well with the use of MicroSet, though the use of solvent additives such as MicroSol is to be avoided except as a last resort for they react badly to them. They are quite delicate but not as fragile as for example, Propagteam, so presented few problems in application. I noticed that for some strange reason the carrier film on the serial number decal 'yellowed' quite suddenly when the model was matt varnished.

A prominent feature on the subject aircraft and others in the squadron was a crudely finished dark strip along the fuselage. What it was I don't know, but I have assumed that there was a draught between the upper decking and the fuselage and riggers had doped on a strip of fabric to seal the gap. I reproduced this on the model with lengths of decal strip painted insignia red.

The model was then sprayed with

some old Xtracolour Matt Varnish. This varnish has been criticised in the past due to its dark tint which can discolour the paint finish, but in fairness only if it's too heavily applied. I made use of this effect by masking off the D-Day stripes and over-doing the spraying, building up the varnish particularly around the front of the fuselage to give the effect of a white finish that had yellowed with age. The masking was then removed and the whole model lightly sprayed for the last time to matt down the striped areas.

Further staining was then applied around the metal areas of the forward fuselage, using matt varnish mixed with a touch of black. This was wiped off and left the effect of an aircraft that had been repeatedly wiped down with a none-too-clean rag.

A problem occurred when the liquid mask on the bomb-aimer's windows was removed, for this fiddling dislodged the clear plastic sheet which disappeared into the fuselage, taking the aircraft's battery with it. Getting the latter back into place using cocktail sticks through the side windows while peering through the hole in the nose would not be good therapy for those lacking patience. With hindsight I'd recommend ignoring these windows while the model is being built, and add them from Humbrol Clearfix after all the painting is finished (my eventual solution).

The lower wing's root braces and the tail surfaces were then added prior to the upper wing being installed. This can cause problems on any biplane model and this one was no exception, although all the parts did fit perfectly well.

At the centre section the struts consist of a pyramid structure to the front and a bipod at the rear, made up from three pieces in the kit, and the recommended method is to fit and glue all these struts into the fuselage, but with hindsight I would vary from this. Although I had made dry runs prior to construction I found a problem in getting the rear strut to fit properly into the wing's trailing edge. I'd therefore suggest that the pyramid struts are glued into the fuselage while the rear bipod is glued into the wing so that a tidy appearance can be ensured. This way the base of the bipod could be fed into the fuselage and then the top of the pyramid fitted into the wing before everything starts getting 'adjusted' into alignment.

I started fitting the top wing by locating the forward interplane struts, gluing these first into the lower wing and then the upper wing. These glue joints were allowed to cure overnight and then the outer rear interplane struts were sorted out. I had four of these in my kit although only two are needed, and figuring out the proper alignment of these parts took nearly an hour for the fit is extremely precise and the shape and angle of, for example, the lower port fixing is definitely different to the upper starboard. A little slit cut for the diagonal bracing wires clearly identifies the struts' leading edges, but this is the only clue you get. With these in place and fixed the inner rear interplane struts can be secured and only then (had my hindsight been available before the event) would the

bipod centre section strut have been finally glued in place.

Aside from my own problems in the sequence of construction, I cannot fault the fit of the wings.

Pretty Peggy

The representation of the Bristol Pegasus nine cylinder radial is a kit in its own right, with no less than 25 resin and one etched brass part plus nine pre-cut lengths of rod. Each of the cylinders has incredibly fine finning, on the heads as well as the expected sides, and even show the valve springs! Each rocker box cover with its single pushrod is a separate part and sits on the valves with the rod entering a hole in the crankcase. Upon reflection I'd be inclined to cut these rods off and replace them with the thinnest Plastruct or Contrail plastic rodding, for the slightest distortion in the cast rod is enough to push the 'box out of line. This rodding would also come in useful when the exhaust collector ring is fitted, for the pre-cut 0.55mm rods are very flimsy and when they are painted by brush or spray are prone to spring out of the tweezers and do a 'Buzz Lightyear' ('To infinity and beyond . . .').

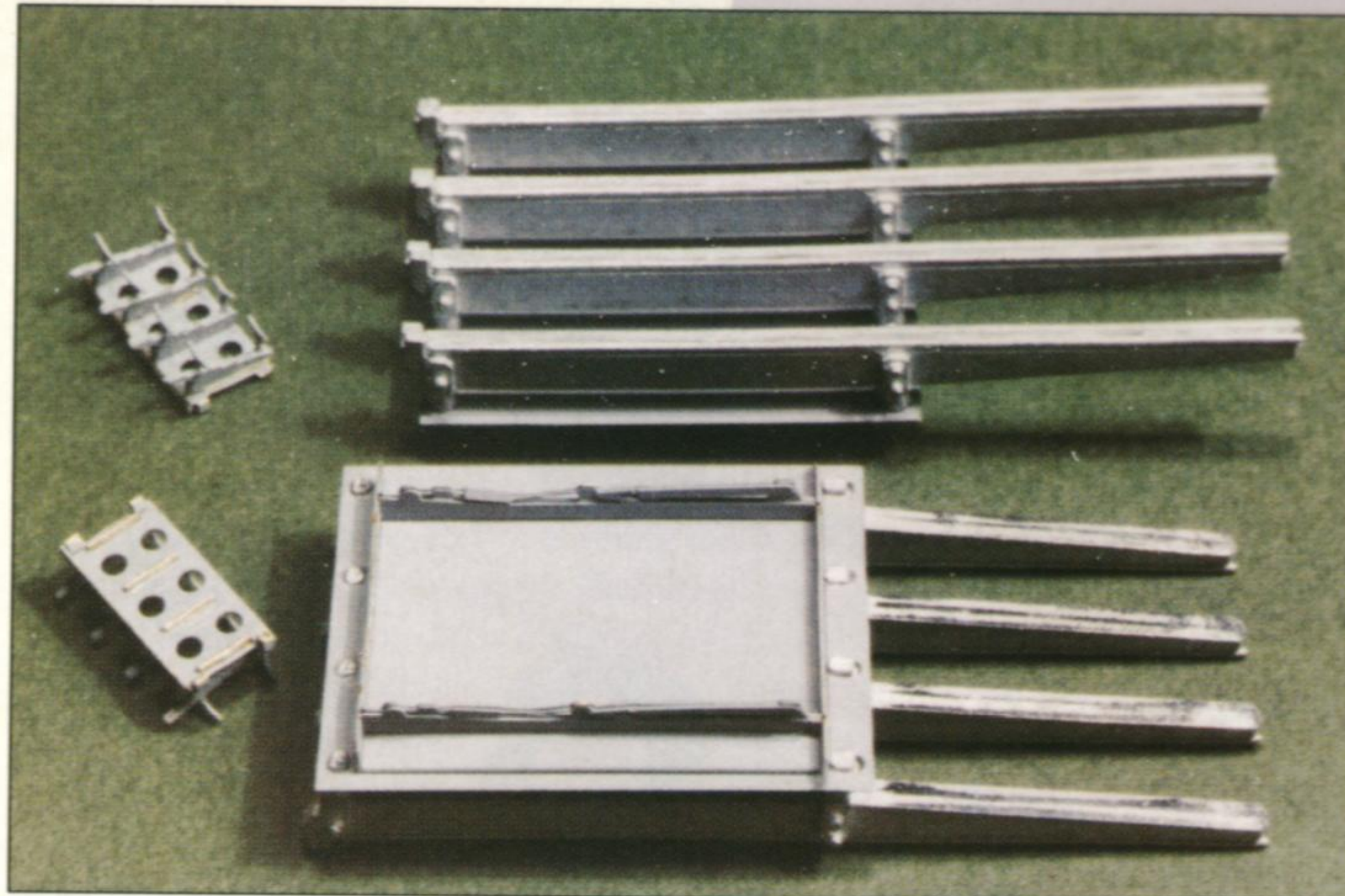
Quite by accident I found a neat way of emphasising the detailing. I had sprayed the individual cylinders with Humbrol Metalcote Polished Steel and discovered I couldn't get to the recessed areas when polishing up the parts after they had dried. However, the polished paint stood out so well against the dull un-polished areas I left them as they were, thinking 'Who needs dark washes!'

A cocktail of Polished Steel and Humbrol Scenic Track Colour was used on the collector ring, with the leading and trailing edges picked out with natural Polished Steel. When buffed up this looked (to my biased eyes) to be reasonably realistic.

Assembly of the engine took some time for the parts have to be dry-fitted and, if necessary, coaxed a bit to get the best fit. For example, I found that the bases of the cylinders, where they plug into the crankcase, had to be eased with a couple of strokes of a file. The only addition that might be made is the ignition harness, but note that on the Peggy this is both incredibly fine and runs behind the cylinders, so unless the model is shown with the fairing ring removed such work is going to be invisible.

On the prototype ('S' of 816 Sqn), white paint had been applied to the exhaust to match the fairing ring, and this had blistered and discoloured something rotten. I tried to reproduce this by brush-painting the area and then pulling the dried paint away from the base colour with Sellotape. This aircraft also had the flame guard fitted, which I painted very dark grey.

When completed, the engine simply plugs into the front of the fuselage, though it demands that care is taken to get the correct alignment. I found two types of propeller in my kit, one white metal and the other resin, and I understand the former is to be the kit standard. The prop is retained with a concealed ring which allows it to be rotated, then the resin spinner is added to complete the

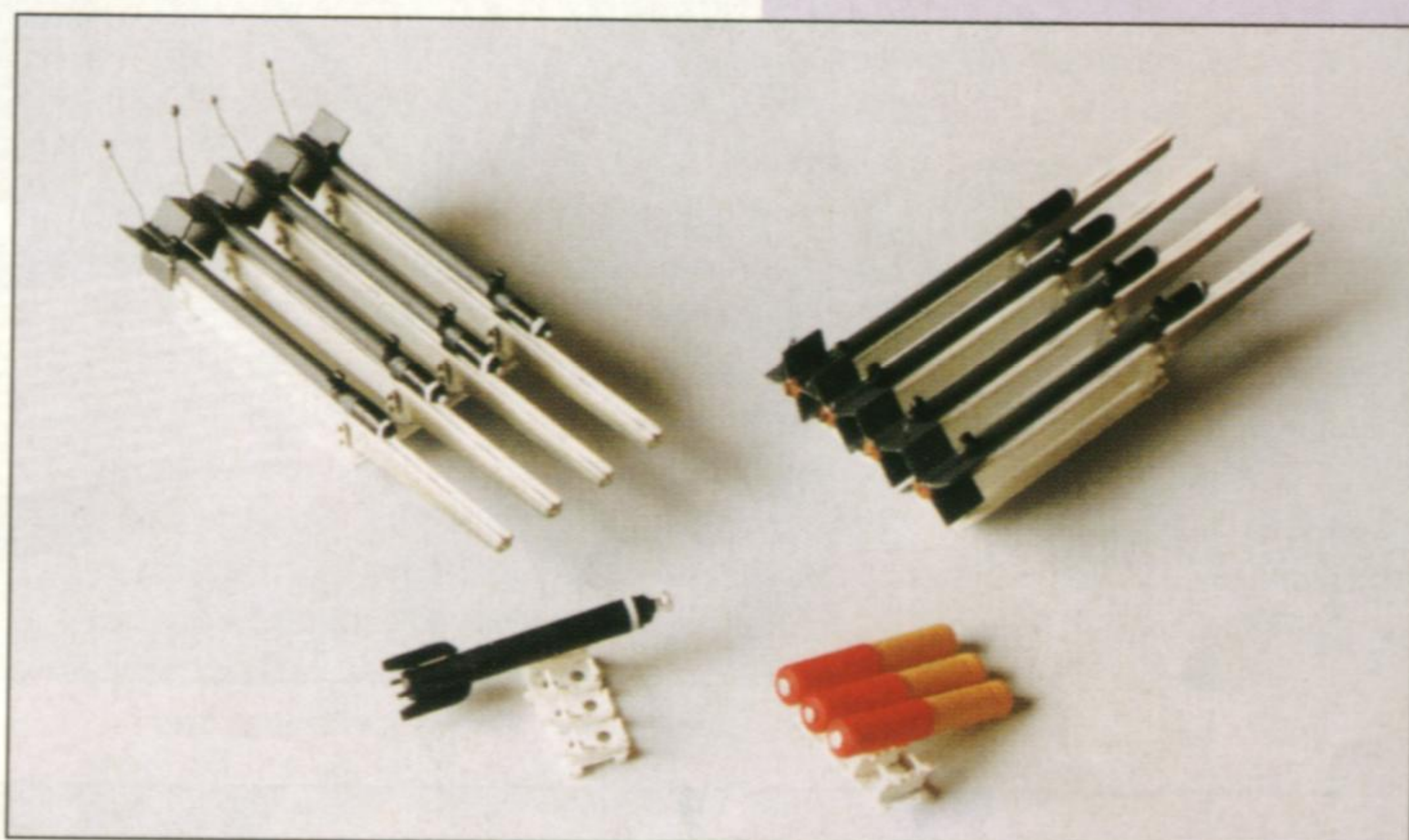


Upper and lower views of the etched and cast metal rocket rails and light stores carriers

installation. However, this is best left until after all the rigging is added.

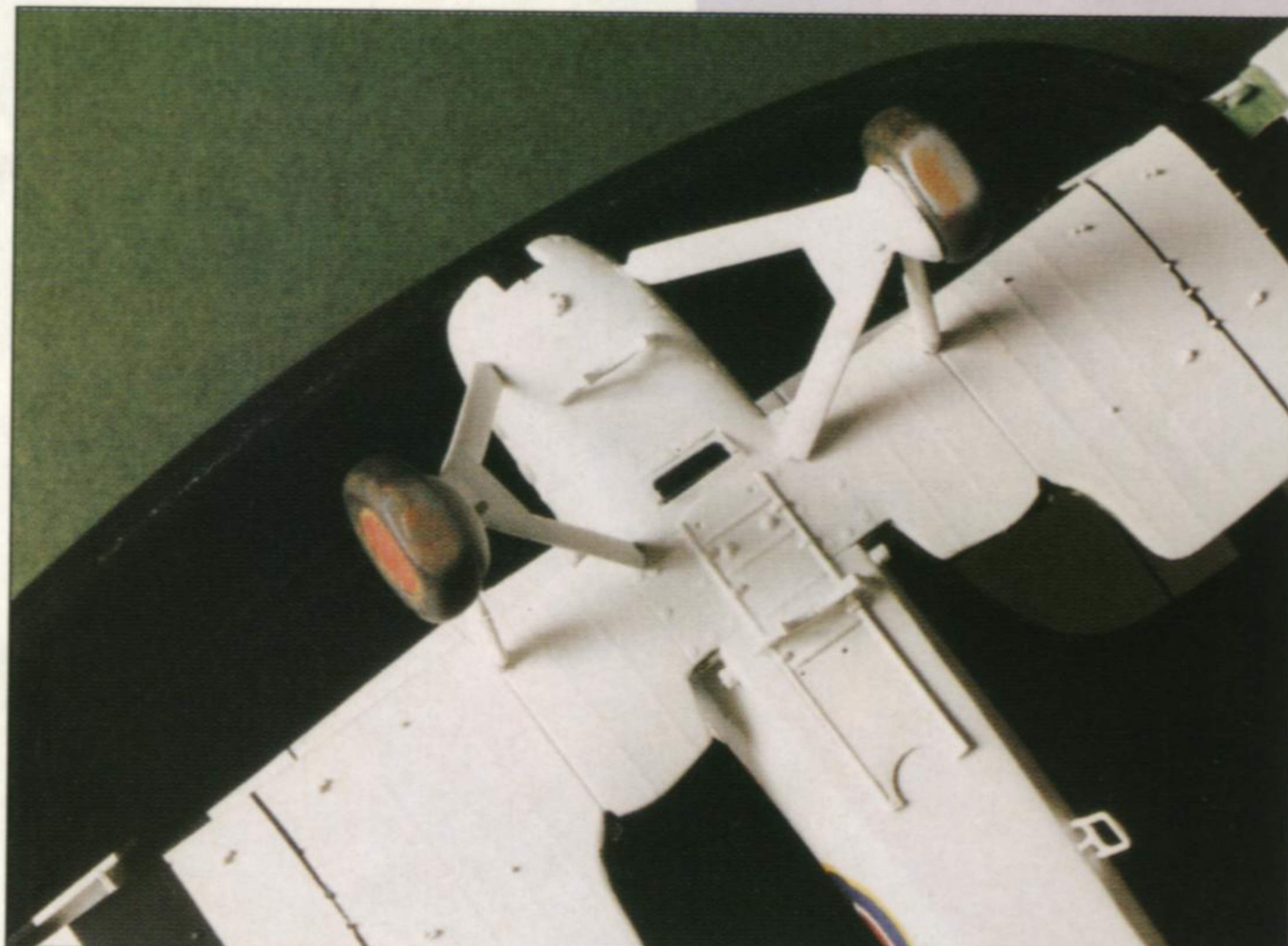
Loading up the shopping

Unlike some present-day mainstream kit manufacturers MDC have given their customers a wide range of ordnance to



The completed stores for the ASW Swordfish being modelled. Only addition were the 'pigtails', the firing wires to the rockets

allow for the wide range of finishing options. You can choose from an 18in. torpedo, depth charges (the shipborne 'ashcan' type), 500lb and both long and short tailed 250lb bombs, parachute flares and smoke floats, plus both 25lb solid nosed AP and 60lb HE rockets. The builder



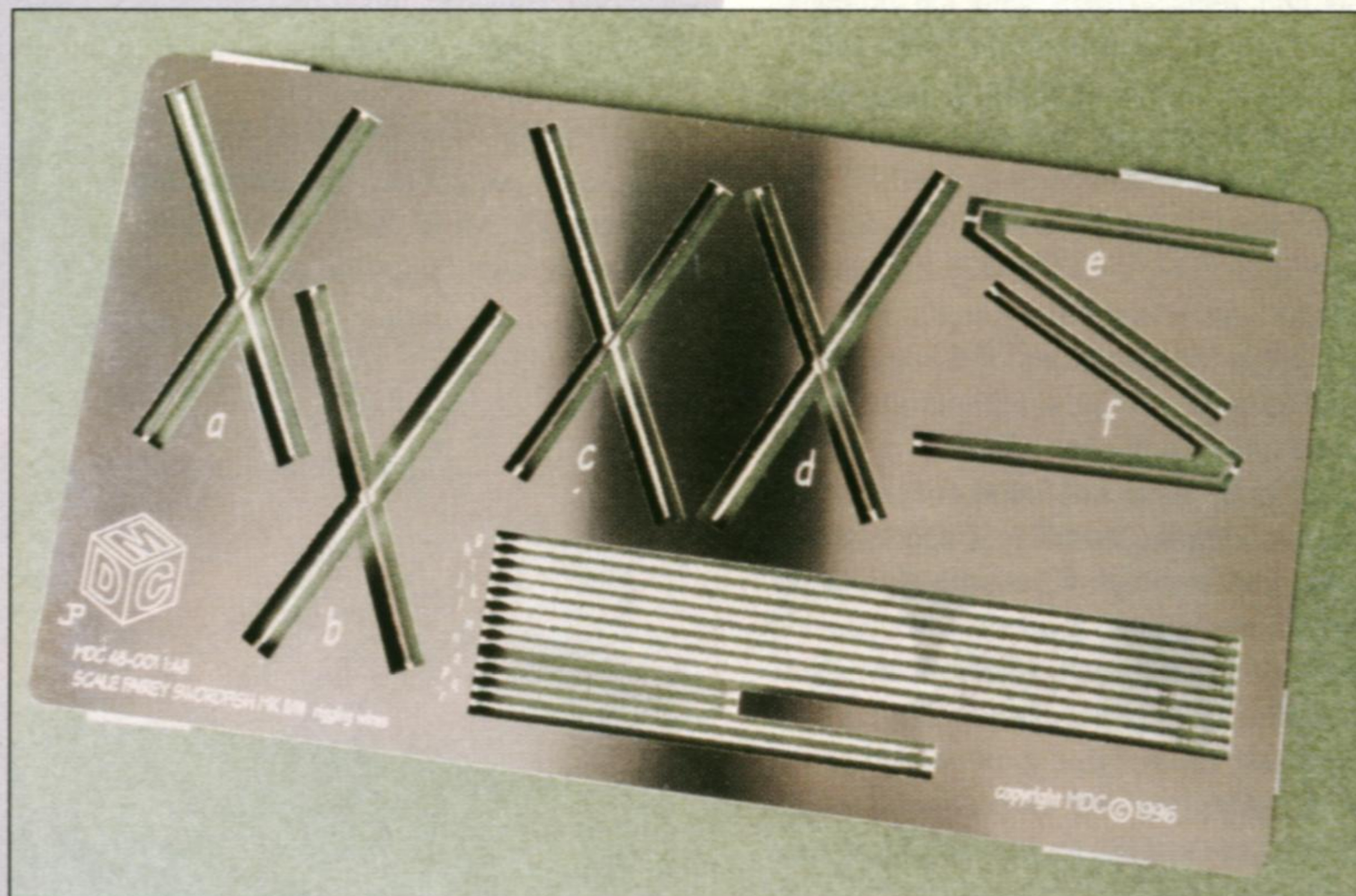
The torpedo crutches were a standard fitting on all Mk II aircraft

is then supplied with six bomb racks, each with three different sizes of sway braces, a pair of light stores carriers, and a pair of the Swordfish's distinctive rocket trays with neatly cast Mk 1 rocket rails. For those interested in part counts this part of the kit takes up no less than 14 resin, 46 white



The VGO (Vickers Gas Operated - alias Vickers K) was a superb little moulding, shockingly accurate and needing only the addition of a ring sight from a Reheat set and the filing off and replacement of the canvas handle on the ammo drum

The sheet of etched steel rigging wires initially looked good, but proved a flop in practice



This close-up shows not only the exhaust flame trap and the optional cold weather shield on the oil radiator, but also the provision of finer details like the torpedo aim-off light bars and the ASW transmitter aerial

metal and a staggering 137 etched brass components. The only conceivable store that is omitted is a 1,500lb magnetic mine (which would also demand a cockpit mounted fuel tank in the observer's position) but as the decal options do not include a minelayer this is no problem.

I roughly assembled all the stores to check on the fit and only found a problem with the short-tailed 250lb bombs, where the etched brass tail fins did not want to line up with the cast metal tail ring. All other parts went together extremely well.

With hindsight I'd also recommend checking the fit of the racks to the wing, and making adjustments if necessary before the racks and stores are finally painted and assembled. It's just not practical to tweak the assembly when the

instructions are re-drafted, so it's back to the reference books.

Making these weapons up was as rewarding as building a complete mainstream kit, for they are complex and complete in their own right. I felt that the kit's original instructions were a little vague in this area. Although the bombs and rockets may be familiar to many the finer points of the torpedo, flares and smoke floats are more elusive. MDC do give colours for all items (though the rockets' colours are scrambled, they should read green heads and black or dark grey bodies) but these do not accurately indicate where colour stripes should go, nor how the stores are fitted to the racks.

The prototype was an anti-submarine aircraft and as such was fitted with rocket rails and carried rockets with 25lb solid heads, which are black headed and have white identifying stripes around the extreme nose. I added the firing 'pigtales' from fine wire with the plugs from a drop of PVA glue. The brown paper cap over the end of the tube was added from light brown paint, the wires finished in black and the plugs in light grey. To add a bit of variety I also added three smoke floats to the starboard light stores rack and a single parachute flare to the port.

Like the engine and cowling, these items were put to one side until the rigging had been completed.

Wind in the wires

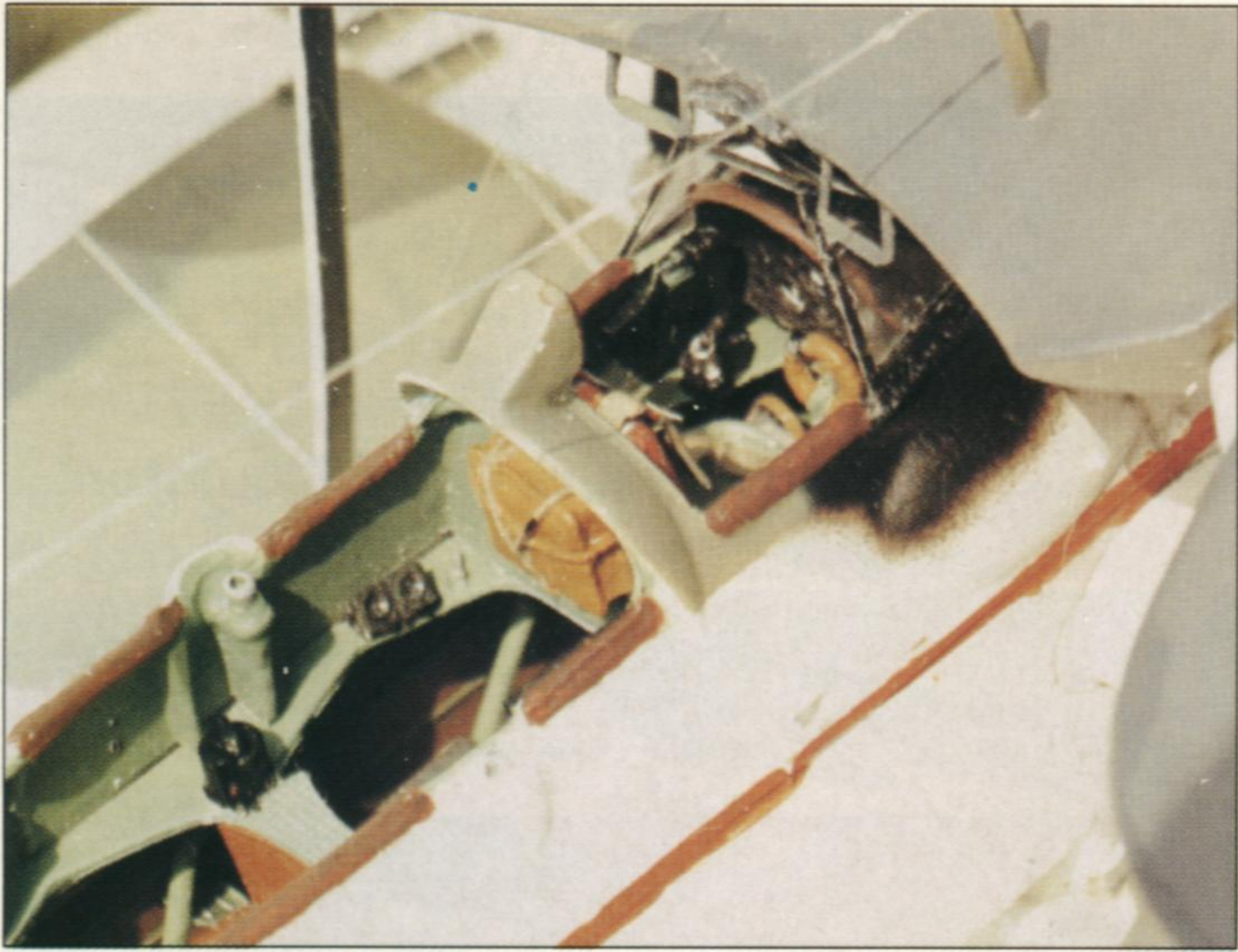
One of the notable points of this Swordfish kit is the provision of etched steel rigging wires and I'd been looking forward to this stage of assembly. The little sheet initially looked most impressive, with half-etched wires leaving the thicker ferrule at the ends which fitted into the airframe's attachments points. MDC have shown the type as having flat steel wires like the R.A.F. wires of the S.E.5.

It took a while to fit these wires, it proving to be far less easy than one might think. Some wires were a little too long for my model and had to be cut back, while others were too short and there was nothing could be done about it other than secure the wire slightly short - in other words in the wrong place. All this wouldn't have mattered if when finished it looked right, but it didn't. From front and rear the wires all but disappeared, but from the side they looked incredibly clumsy and out of scale. I measured the model's wires and they work out at a scale 1in wide, quite correct for a WW1 era R.A.F. wire, but they still just don't look right.

Unfortunately the wires in the kit have been left with slightly ragged edges due to the etching process, the same process leaving the half-etched metal with a mottled appearance on one side which I could not polish out with wet-and-dry or a glass fibre polishing pen. All in all a most unsatisfactory situation.

Alas I didn't take a photo to prove these arguments before pulling all the wires out of my model, for I was in an unsettled frame of mind. (OK, to put it bluntly I was giving the near neighbourhood a recital of my most imaginative barrack-room language!) This was a most depressing situation when the job was all but finished.

highly detailed racks are complete, for they are very fragile. No detail is given in the instructions as to what fits where, though this may be attended to when the



That big cockpit deserves all the detail it can get, and MDC haven't missed out a thing. The builder gets the option of either etched straps 'or' for the pilot's seat harness, or just etched buckles for the builder's own choice of harness material. No harnesses for the observer and gunner; they just had a safety chain to their body harnesses so that they wouldn't fall out.

I re-rigged the Swordfish using clear heat stretched sprue, my usual choice for an aerial wire, but although these wires were nice and taut they looked too insubstantial when compared with photographs. Once again the rigging was ripped out! (As misfortune would have it, a friend pointed out that I could have painted the wires to make them more obvious, but by then it was too late!)

Third time lucky? This time I used fine metal wiring from multi-strand electric flex, carefully unravelled and 'stroked out' until it was straight. This was measured off with dividers and cut to length before being fixed with Clearfix, a method that I've seen described on several occasions but have never tried. This looked substantial enough but wasn't as taut as I would like. With hindsight beforehand I could have drilled holes to take the rigging wires after painting but before assembling the struts and wings.

Sorry MDC, I know this kit deserves better and I promise I'll re-rig it (again!) when my nerves have settled down.

One item that isn't mentioned in the kit is the rod that links the front and rear landing and flying wires (sorry, I don't know the technical term) which was added from plastic rod and painted Extra Dark Sea Grey.

The prominent control wires to the tail surfaces were added from similar wire at this stage and the Swordfish was nearly finished.

Final steps

Phew, what's left? A couple of paint chips were added around the metal panels of the nose and the metal-edged foot steps, then the centre section struts were completed with the addition of the gunsight and torpedo deflection light bars. A final check-over and light dusting with matt varnish to get rid of the glossy Clearfix smears around the rigging points, then the ASV aerals were fitted. These were formed from steel wire off a coil that had to be straightened out, cut to length and fed through holes that had been drilled in the receiver struts (on the outer interplane struts) and the transmitter (the three spherical mountings on the centre section's leading

edge). Wheels were given a 'muddy' wash and added (note that these are already 'flattened') and all the lights picked out with silver paint.

The navigation and formation lights were tinted as appropriate and the model flipped upside down for the under wing stores to be fitted. A bead of superglue gel was applied to the appropriate attachment points, the stores put in place and the model left alone overnight. As I understand it, superglue 'grabs' very quickly but it still takes time for the full bond to form, and the attachment points on the Swordfish are tiny while the loaded racks are very heavy. I felt that discretion was appropriate for a change!

Last of all the engine was fitted and the gun armament fiddled into place, then the radio aerial added from heat stretched sprue, and that was it.

– Summary – A personal view

A serious question has to be asked here - is any model airplane kit worth £75.00? How long is a piece of string? The answer will vary depending upon the individual's view of model making as a hobby.

For the mainstream injection moulded kit basher the kit will appear vastly over-priced and there is no argument on earth that will convince them that £75.00 is a worthwhile sum for a single model plane that only measures 11 x 9 inches. Mind you, if the escalating cost of covering shelves with plastic is a problem, one could suggest Fablon as an economic alternative!

The fact of the matter is that the MDC Swordfish is not intended for the plastic kit assembler. It bears the same resemblance to a Tamigawa or Hobbydemy offering as a Mamoli or Billings model galleon does to an Airfix galleon - there is no comparison. It is a kit for the modellers who enjoy 'making' a kit.

As far as I am concerned this single kit contains more potential for model making pleasure than a dozen 1/48 scale mainstream kits, presents the builder with an infinitely greater challenge (that's not a euphemism for 'unbuildable') and the finished result is therefore far more rewarding. For the individual who simply enjoys model-making, this single kit could keep them going happily for six months or more. I shudder to think how much I'd usually spend on mainstream kits in that time - how about you?

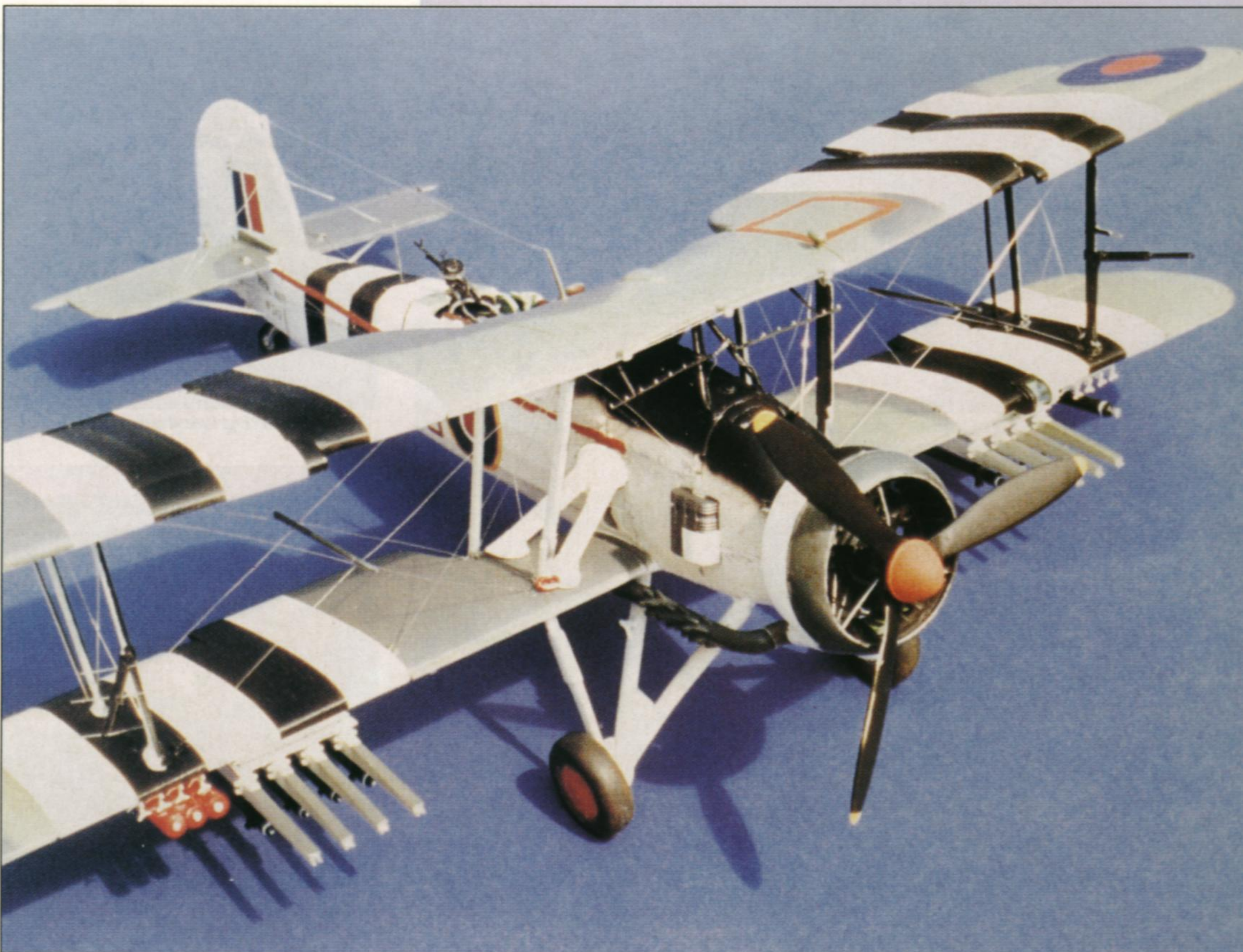
The part count is relevant when one considers how some resin kits costing £30 - £40 may offer the builder a dozen 'bits', no decals and maybe a handful of white metal if you're lucky. MDC's offering is monumental. I tried to count the parts and gave up at; 114 cast resin, 70 white metal, 171 etched brass, 18 etched steel, nine clear plastic and 29 pre-cut lengths of plastic rod. If my maths are correct that's a staggering 411 individual components in a kit offering 15 colour options!

I have to say that building this model against a deadline with the prospect of offering it to public gaze through these pages made my own building project a little too tense to be entirely enjoyable. However, I have little hesitation in recommending this kit to any experienced modeller who has no fear of mixed media.

One aspect that hasn't been touched on yet is accuracy. According to dimensions in Wings of the Navy the Swordfish was 45ft. 6in. in span and 36ft. 4in. long when measured in a flying attitude. According to my measurements the model is 2 scale inches too wide and 6 scale inches too long, but my 'scale rule' has no proof marks or indications of temperature range so it cannot be taken as gospel. Nor should my measuring abilities be considered as equivalent to those of a trained engineer. In shape, outlines, sections and 'sit' the model is convincing in the extreme.

I understand that MDC's next offering will be another Fairey, either a Battle or a Barracuda. I can hardly wait!

David Batt



was at a loss to come up with an original working title for this article...so apologies for the rather unoriginal one I eventually opted for (It's just as well De Havilland didn't opt for their original choice for their Vampire - "The Spider Crab"!).

The Vampire fits very nicely into the areas of aviation and modelling that interest me the most...It's got a jet-pipe - and it wears Red/White and Blue Roundels (well the ones that I like do!). As a founder member of the Jet-Age club, celebrating the 50th anniversary of its entry into RAF Squadron service in 1996 (Not me - The Vampire!), it is of course of great historical importance as well. By all accounts the Vampire was a very basic aircraft, being of typical 'De Havilland' design, and like its famous ancestor the Mosquito, featuring a fair amount of wood in its construction. Despite its simplicity it was a fine performer, notching up some notable 'firsts' for a jet (not too surprising really, as there weren't that many jets about at the time!) including a new world altitude record of nearly 60,000 feet in 1948. It earned De Havilland and the UK valuable import revenue, served in many air arms across the world, and of course gave us some excellent derivatives such as the Venom and Sea Vixen.

Luckily the historical importance and the appeal of the Vampire has been

their multi-version vac-form kit. Aeroclub had initially planned a series of Vampires, but put them on hold when it was announced that Hobbycraft were entering the fray. Aeroclub then decided to 'amalgamate' their series into the one kit, featuring a choice of parts to portray the FB.5, FB.9, NF.10 or T.11. The accuracy of this kit is first class, although it should be noted that decals are not included. All is not lost though because Xtradecal produce three sheets covering all of these marks, featuring some very colourful schemes - who says RAF aircraft are boring?

I had initially planned to build Aeroclub's single seater, as an FB.9, and use the spare parts to convert Hobbycraft's NF.10 into a T.11, by grafting on Aeroclub's T.11 nose to Hobbycraft's fuselage pod. This, while being possible was just not worth the effort, apart from the problems with extending and broadening the wings, Hobbycraft's fuselage was much wider than Aeroclub's, thereby making the T.11 nose slide into the NF.10 fuselage pod! As I still wanted a T.11 to add to my collection, and to accompany the FB.9, I purchased a second Aeroclub Vampire.

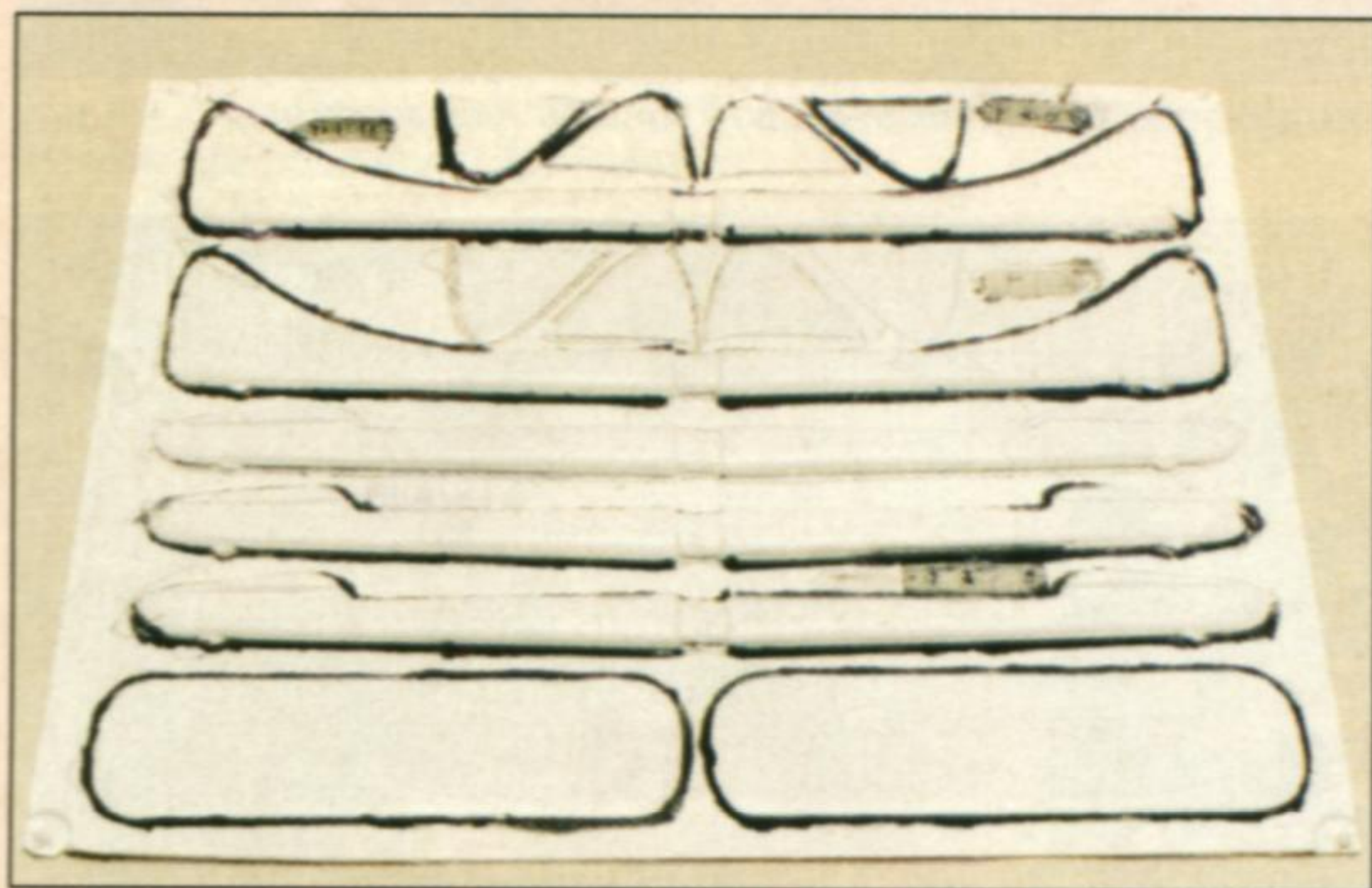
Preparation

The success of any Vac-form model is dependant on the preparation work. Luckily Aeroclub's parts are amongst the

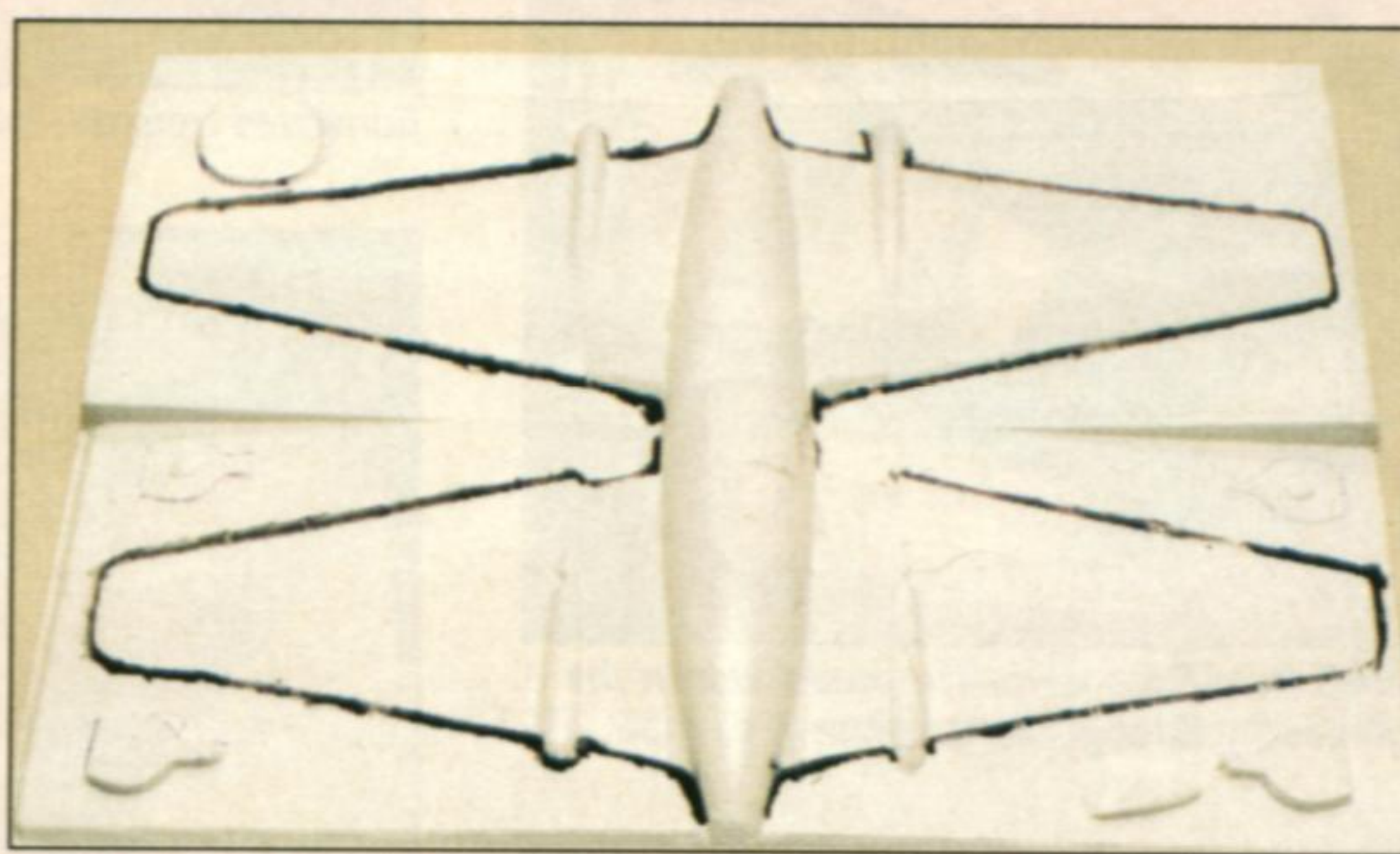


Fangs for the

by Bill Clark



The Tailbooms & Tailplanes are on one sheet...



...with the nose pods on another. The parts for the T.11 are at the top, The FB.5/9 in the middle with the NF.10 at the bottom. Note the three different floors supplied

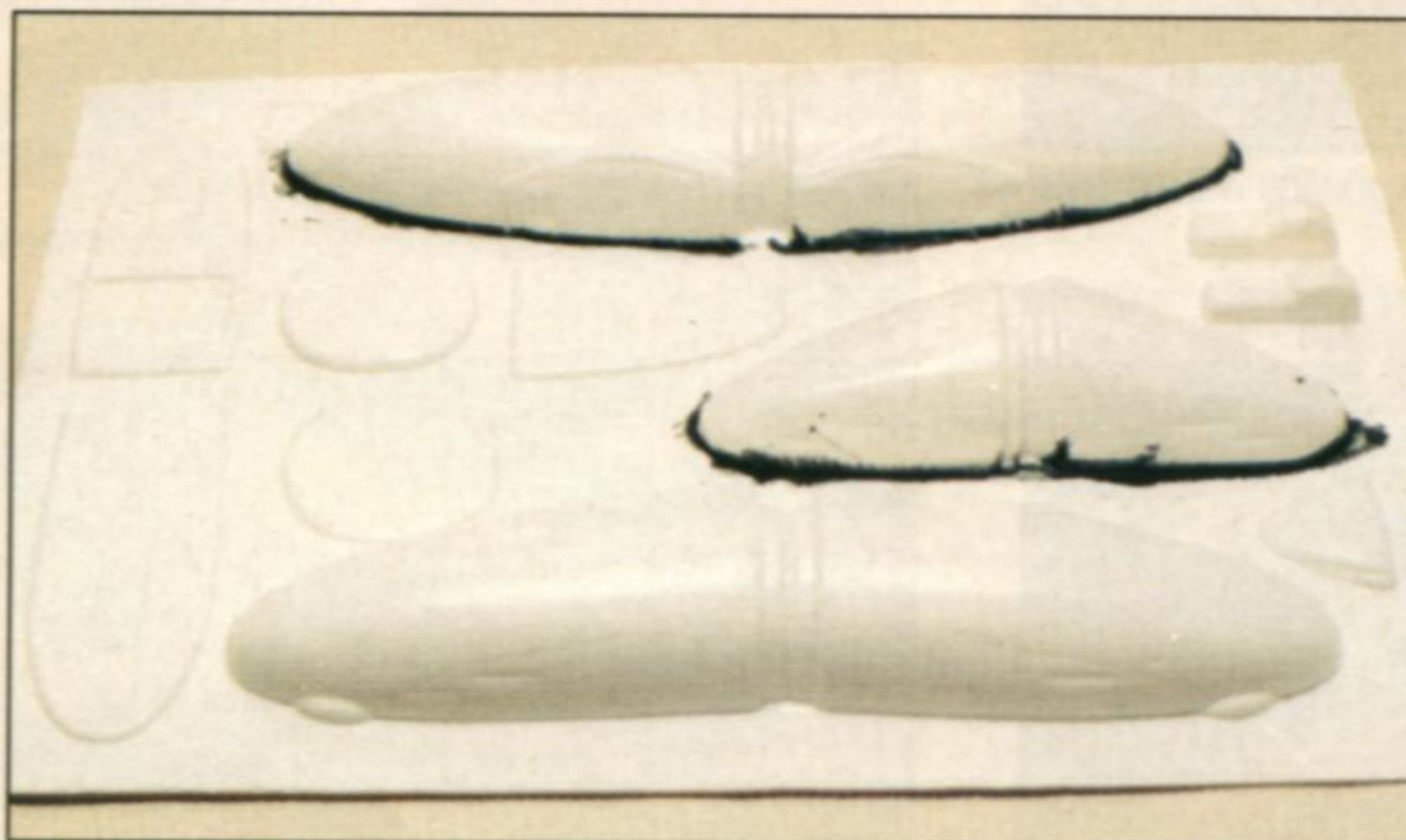
reflected by kit manufacturers. Many years ago Frog produced a very acceptable FB.5 in 1/72nd scale. This has re-surfaced under various Russian labels over the years, and of course Heller released an equally acceptable Mk 5 more recently. The cottage industry has also had a bash, with a number of T.11s, both limited-run variety and conversion kits.

In 1/48th scale Hobbycraft have produced a series of kits, ranging from the F.1 to the T.11. The quality of Hobbycraft's mouldings is excellent, having finely engraved panel lines. However, the accuracy of these kits dimensionally, as evident in the NF.10 that I purchased a couple of years ago, leaves a lot to be desired! The fuselage is too 'podgy', the wing span is too short with insufficient chord, and the booms look a little anorexic! Okay, I accept that Hobbycraft's models look like Vampires when built, but I find these inaccuracies baffling. When so much effort and resource goes into tooling and manufacturing these kits why can't they be accurate? Luckily the chore of 'kit-bashing' these into shape is not needed as Aeroclub have come to the rescue with

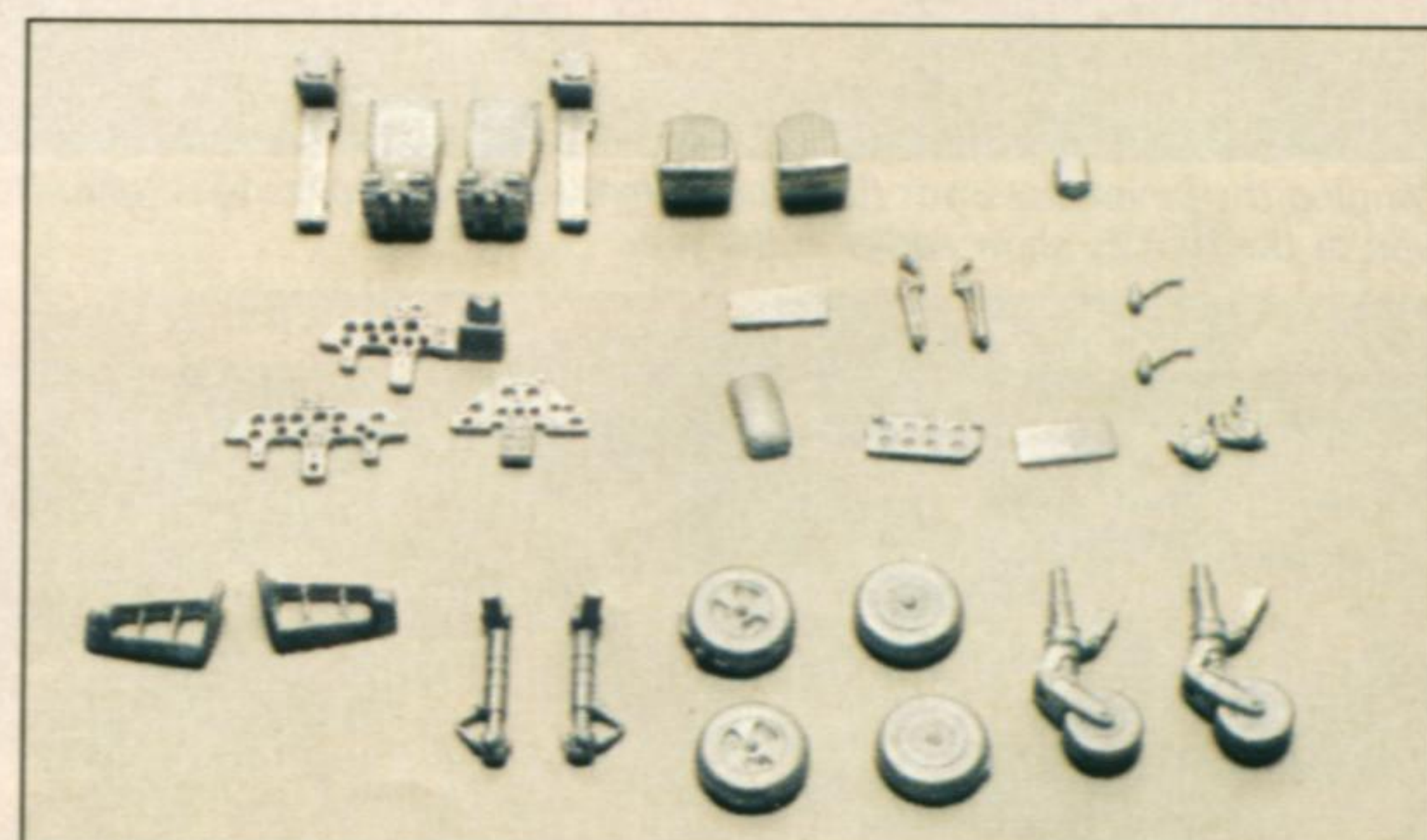
best vac-forms around, the plastic being thick enough to handle and generally bash about. Aeroclub provide the fuselage halves, split horizontally with integral wings, on one sheet, with the nose sections (single seater, NF.10 and T.11) on another and the tail booms and fins on a third. All

Initially a line was painted around the join between the backing sheet and the parts. When dry a scalpel was used to scribe a millimetre or so away from the part. The backing sheet was then carefully snapped off. With all parts removed from the backing sheets the next task was to

method, I always seemed to get too much plastic removed from the sides and not enough from the middle! And it seems a waste of wet n' dry paper. My method (well - it works for me!) is, with a new blade in my scalpel, to scrape the excess plastic off, close up to the pre-painted line. Small pieces of wet'n'dry paper are then used to finish off, with the pre-painted line acting as a guide. As a rule of thumb (providing you haven't sliced through it with the scalpel, unlike me, and I've got the scars to prove it!!) when the last 'hair' width piece of plastic is removed then it is time to stop. I always start my vac-form models by dealing with the largest parts first, to get a feel for the plastic and to build up confidence for the trickier smaller parts - this being particularly relevant with a model the size of the Vampire, with its relatively small booms and tail fins.



The wings/fuselage pod are on the third sheet



Aeroclub supply a vast array of white metal in this kit. Note the two different seats supplied, the three instrument panels and the different wheels

of these parts being split vertically.

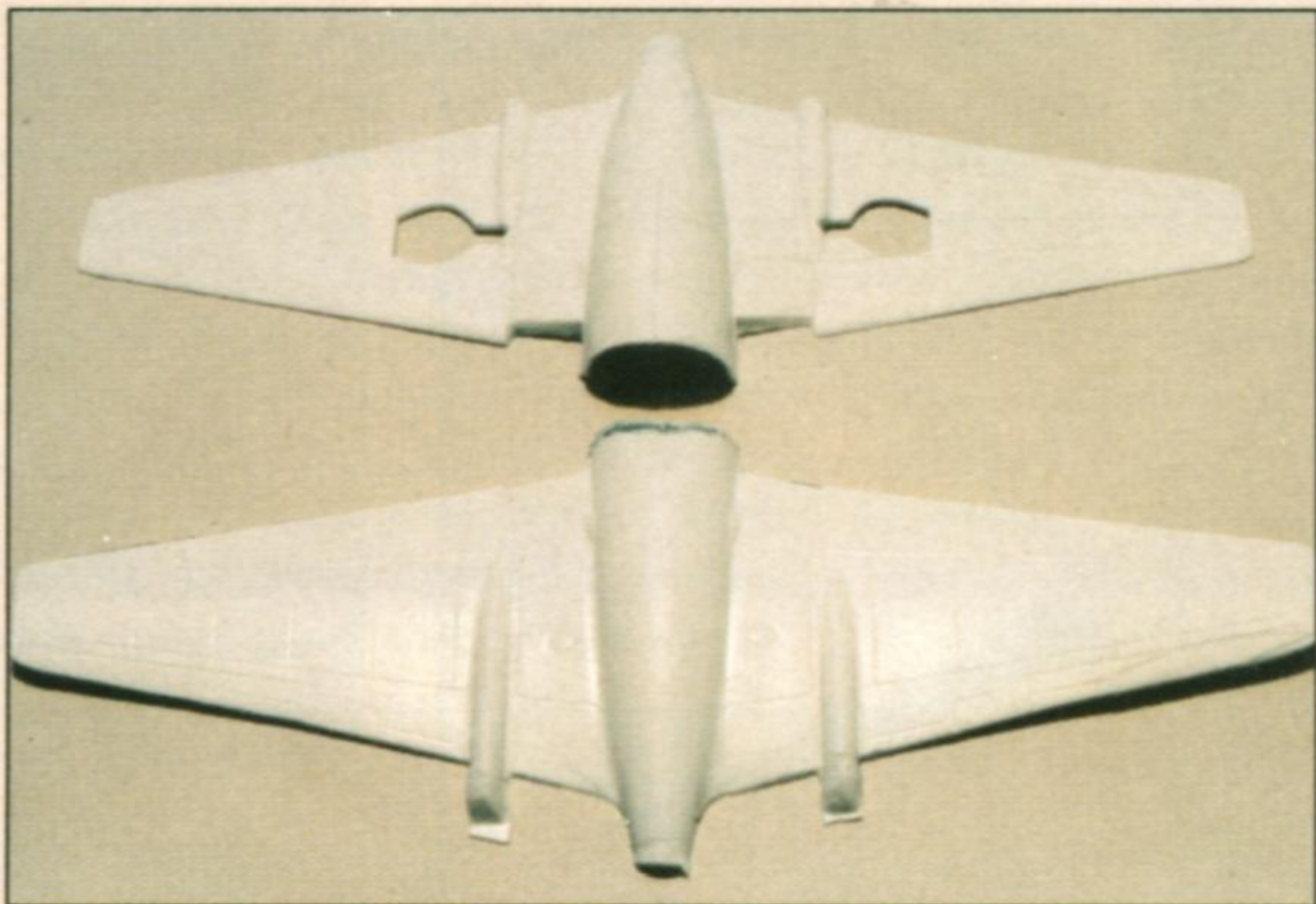
I actually built the FB.9 first, with the T.11 following a few months later. For the purposes of this article however, I have described the parts common to both models as such. The differing parts are described under their individual headings

remove the unwanted plastic. Conventional methods of dealing with vac-forms have suggesting using a sheet of wet'n'dry paper secured to the work top. Each part of the model is then sanded down on the sheet. I have to admit to not having a great deal of success using this

Fuselage

With all the relevant parts removed from the backing sheets construction proceeded with the fuselage. The rear fuselage pod is split horizontally with integral wings. This is a good idea as the correct dihedral is built in. Excess plastic

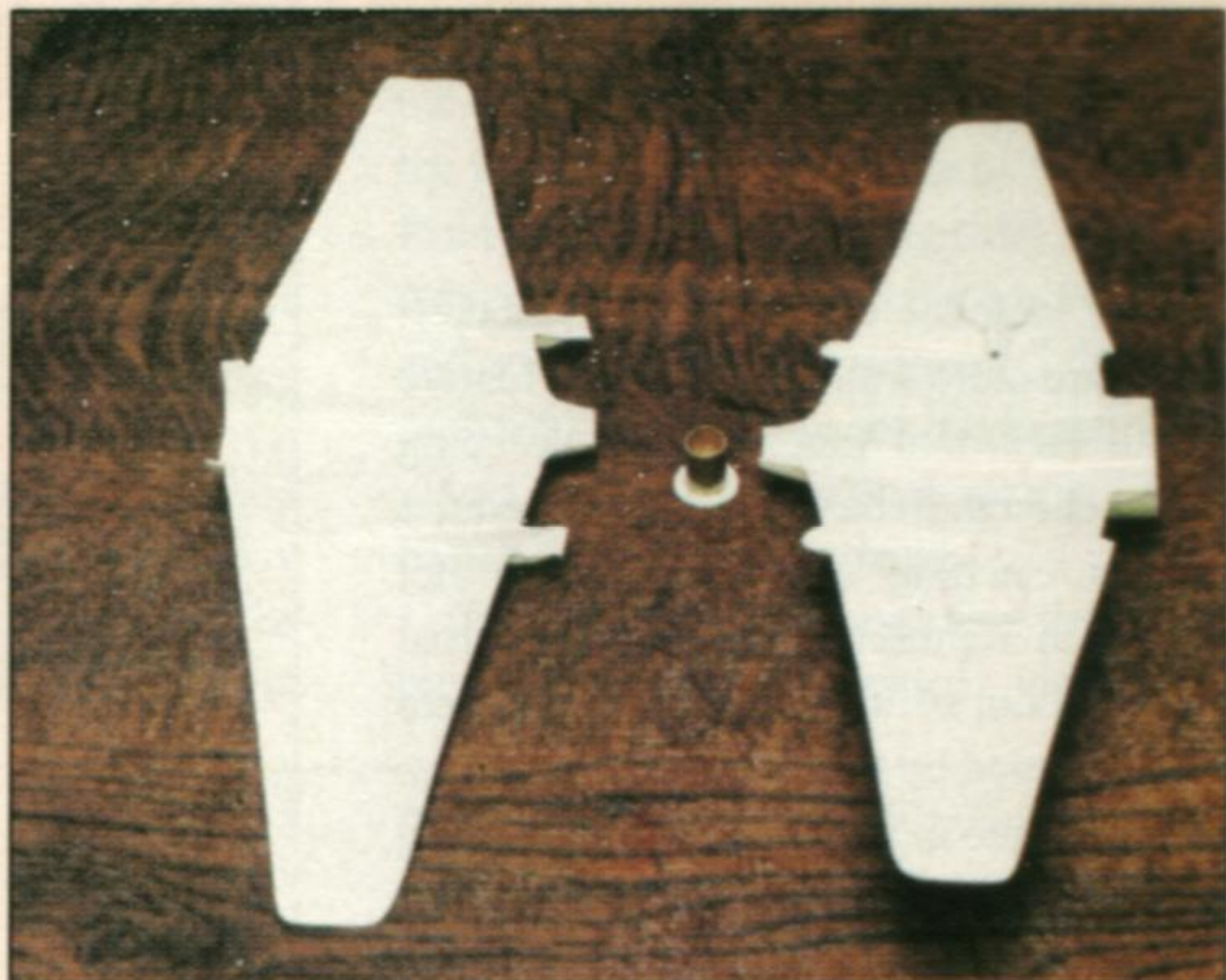
for the engine intakes and jet pipe was removed. Small tabs were added to the joint line to aid alignment and to ensure that both were correctly cemented together. Aeroclub do not provide a jet-pipe for the kit but suggest 1/32nd brass tubing which I found was readily available from my local model shop. I used a 1 inch section of tube blanked off with a circular section of plastic card, this being sufficient to give the impression of some depth into the fuselage without imposing a weight penalty, thus avoiding a dreaded tail sitter, although with the amount of white metal destined for both version's nose, I doubt whether a 1 inch section of brass tube would have had much of an adverse effect but you can't be too careful. The wheel well areas were removed and cleaned up and the vac-formed undercarriage bays were added on the FB.9. The fit of this was a little suspect, so when dealing with the T.11 I left these off, substituting thin plastic card applied from the exterior to represent the under-carriage bay walls. After ensuring



The fuselage/wing pod with wheel wells opened

wheel well itself. The idea was that with the wheel well in place, the lower wall is gently sanded to conform to the contours of the fuselage and this was, for me anyway, a nigh on impossible task. So I removed the lower 'walls' and replaced them later with thin plastic-card once the nose was complete, this being applied from the outside. The instructions were

The Vampire single seater had a very cramped office. The addition of the white metal 'bucket' type of seat fitted suggested otherwise on this kit. The pilot would have had acres of space, so I referred to photo's of the cockpit area which suggested an answer. The plywood/balsa used in the cockpits construction would have been a lot thicker



For the FB.9 I used the kit's vac-formed wheel well bays. Due to a poor fit, I substituted these by plastic card in the T.11

using sprue, rod and plastic card. This area would be largely unnoticed when the model was completed anyway. With the white metal throttle control lever in place, each wall was painted Humbrol Black-Grey and high-lighted in medium sea grey, with a few switches detailed in yellow. Black painted plastic-card was tacked with Kristal Klear to the rear of the pre-painted (in Humbrol black/grey) white metal instrument panel supplied by Aeroclub - a representation of the dials was then scribed through the dials using a pin. The dial's holes were then filled with Krystal Klear and when perfectly dry, superglued to the fuselage half. When fairly happy with my attempt at detailing each cockpit wall, the white metal control column was added and the two halves cemented together, again using small tabs to aid alignment. The nose-wheel well walls (try saying that 30 times in quick succession!) were replaced using thin plastic card, which also helped straighten up the over cut apertures already removed. The nose pod was then joined to the fuselage pod ensuring of course that every thing was in perfect alignment. (Anyone reading my previous articles may be familiar with this next sentence): ...

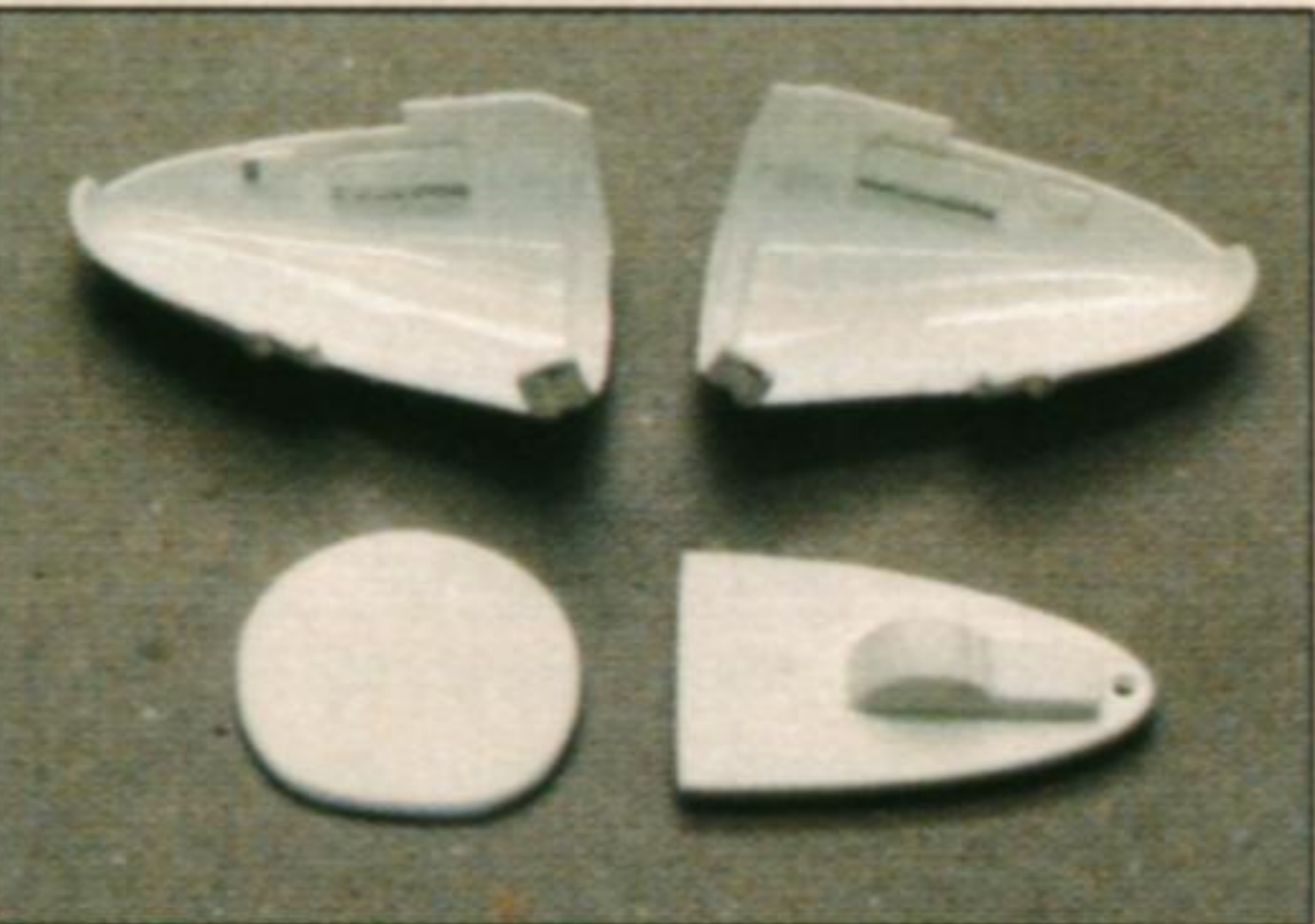
...a fair amount of Green-Stuff filler was required to hide the resultant gap!

T.11

The two-seater that I modelled (being of a later vintage, earlier models having bucket seats) featured two ejector seats, both of which are provided in the kit in white metal. These are supplied in two parts and once constructed were painted and detailed, with cushions and parachute packs fashioned from Milliput. Straps and harnesses were represented by thin strips of buff coloured envelope,

Memory (!)

- D.H's "Vampire Pair"



Construction commenced with the FB.9s nose...

that the trailing edges of the wings were sufficiently thin (although I don't go too mad here, I prefer to sand the over thick outside and re-scribe panel lines later) and with the two halves carefully aligned and taped together liquid glue was applied along the seams. Filler was needed on both the front and rear of the fuselage where I had previously removed a fraction too much plastic.

Noses

With the rear fuselage pod/wings constructed, attention turned to the nose sections.

FB.9

Cannon troughs were opened up with a fine needle file after being backed by plastic card to avoid 'see-through'. The areas for the canopy and wheel well bays were removed, I found a little difficulty in fitting the nose wheel wells into the cockpit floor..... Aeroclub provide a small 'hatched' area that needs removing, to allow the well to be inserted. The hatched area itself is somewhat vague, and I encountered another problem with the

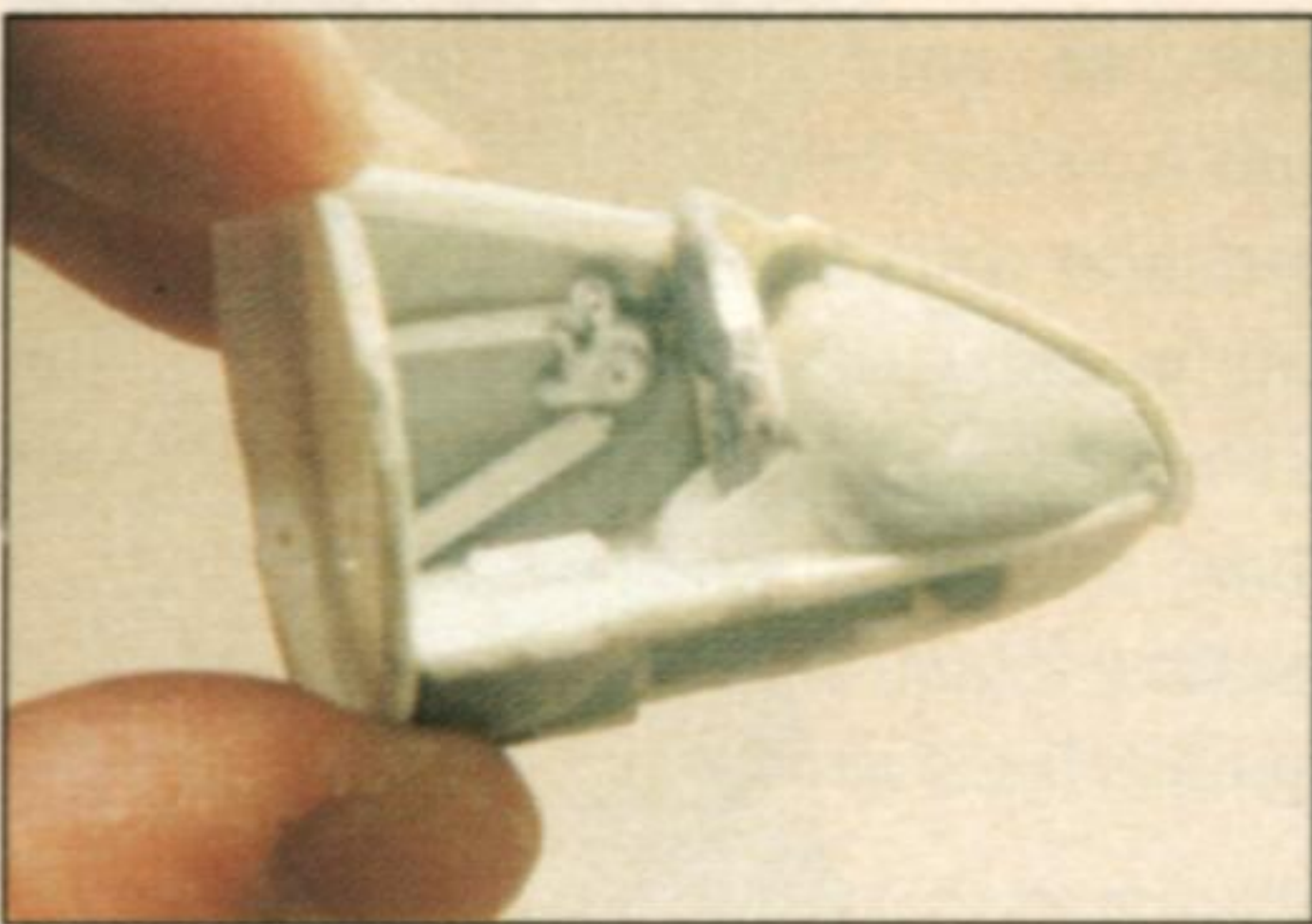
followed to the letter on the next stage, something I'm afraid I do not always do (little wonder I end up using so much filler!). With the cockpit aperture



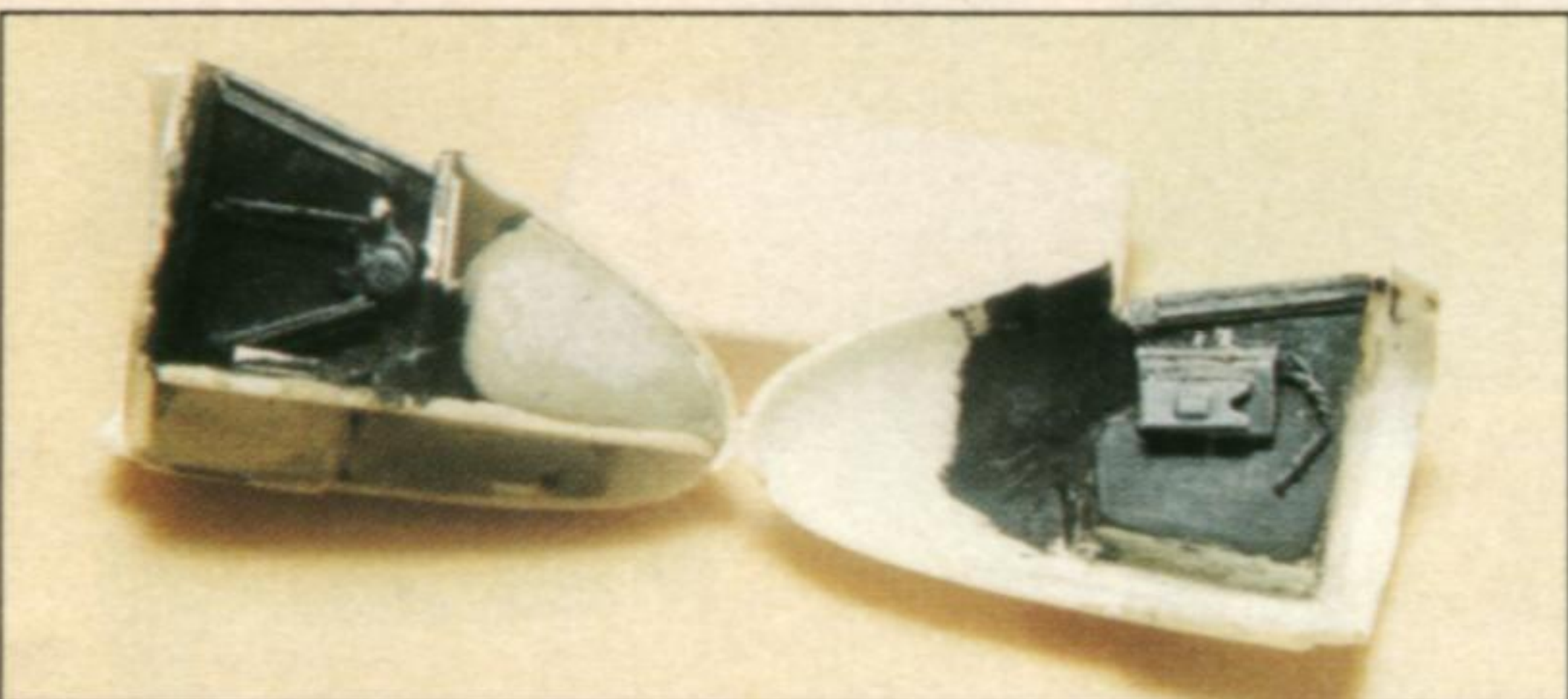
...with Milliput and plastic card used to thicken the walls

removed, both halves of the nose section (this time split vertically) were taped together. The pre-cut floor, with the wheel well top added, was inserted by 'springing

in scale than the plastic used in the kit (well that's my story anyway, and I'm sticking to it) so the interior of the walls needed thickening up - which made a change from thinning down. Sections of plastic strip were cemented to both sidewalls, leaving a gap at the front where the instrument panel would fit. These strips provide a suitable 'key' for the



The port side ready for a coat of paint



The FB.9s nose halves about to be joined

out' the rear nose's aperture, and when convinced that it was correctly in place, cemented to the inside of the left side of the nose. The rear wall/bulkhead was then inserted and in turn cemented to the same side and floor. When dry the tape was removed and detailing could commence.

application of Milliput, which was plastered on and blended in with a wet finger. This saved a tricky sanding-down operation later, a perfectly smooth finish not being that crucial, as most of the wall would be covered with piping and instruments etc., which was applied later,



The T.11's nose with the two white metal ejector seats

with buckles from silver foil. The ejector seat handles were manufactured from yellow/black painted fuse-wire and superglued into pre-drilled holes. The construction of the nose pod was identical to that of the FB.9, but minus the wall-plastering. Interior detailing was

applied directly to the walls and painted and high-lighted as described above.

Air Intakes

The kit includes white metal air intakes. These are quite well moulded, and feature the all important vanes, and while being robust enough to bash around, did require a little cleaning up. Aeroclub do not provide a representation of the internal intake scoops/trunking, so these were manufactured by folding triangular pieces of plastic into a 'V' shape, trimming to fit and supergluing it to the rear of each intake. A further triangular section was then glued to the open part to avoid see-through into the fuselage. After spending a considerable time in dry-fitting the intake units, and following the removal of some more plastic to ensure that the intakes were in-line, each was superglued in place. Milliput was then used to fill the larger gaps with some Green Stuff to hide the smaller ones.

The FB.9 (and a few FB.5s for that matter) featured an elongated fairing at the front of the starboard side air intake. This housed the air-conditioned unit, essential for flying in the Middle and Far-East. The vac-formed part was removed from the backing sheet and following trimming was backed with Milliput and superglued in place, with some more filler added to blend the unit in.

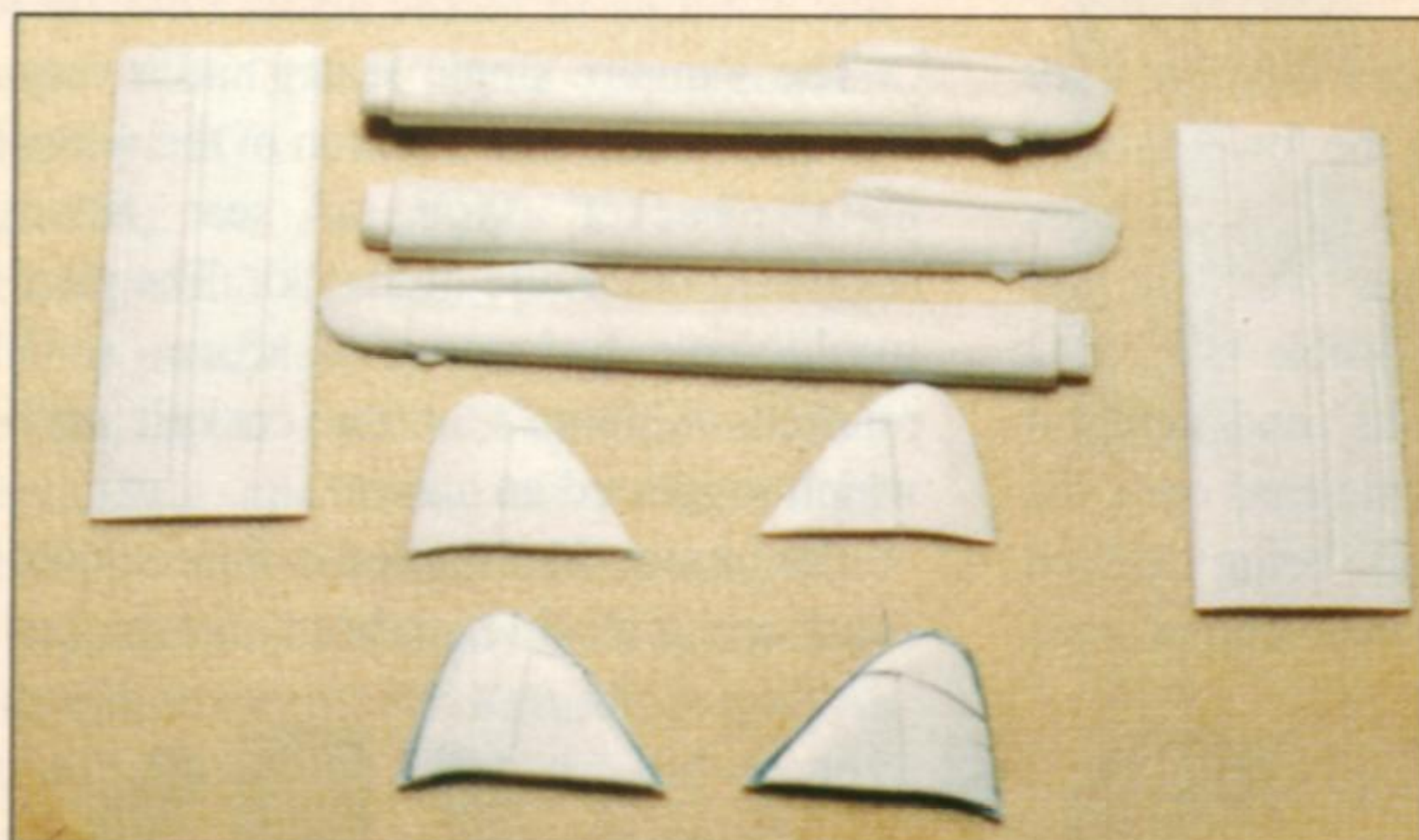
Tail Booms/Fins

With the fuselage/wings and noses now 'drying in the sun' attention turned to the booms.

Aeroclub thoughtfully provide separate booms for the FB5/FB9/NF10 and the T.11. The T.11 boom has the fins built in, but the FB5/FB9 & the NF.10 have theirs as separate items. These are fairly tricky to deal with due to their size, so I took a great deal of care in ensuring



Ready to be joined here are the T.11's nose pod & fuselage pod



The FB.9's tail-booms, the upper one has been joined, the lower pair await joining...

now turned to joining all the parts together. Aeroclub suggest using a jig and supply the dimensions required. On my initial model, the FB.9, I opted for the less complicated method of using plastercine on my cutting mat to hold the fuselage, using the mat's lines for alignment purposes. Large blobs of plasticine were then used to support the booms and tailplane. This arrangement worked fine until, while the glue was still setting, I decided to lift the mat up. The mat is of course made from rubber, and being rubber is, FLEXIBLE!!!...as were the booms at this stage! A small dot of

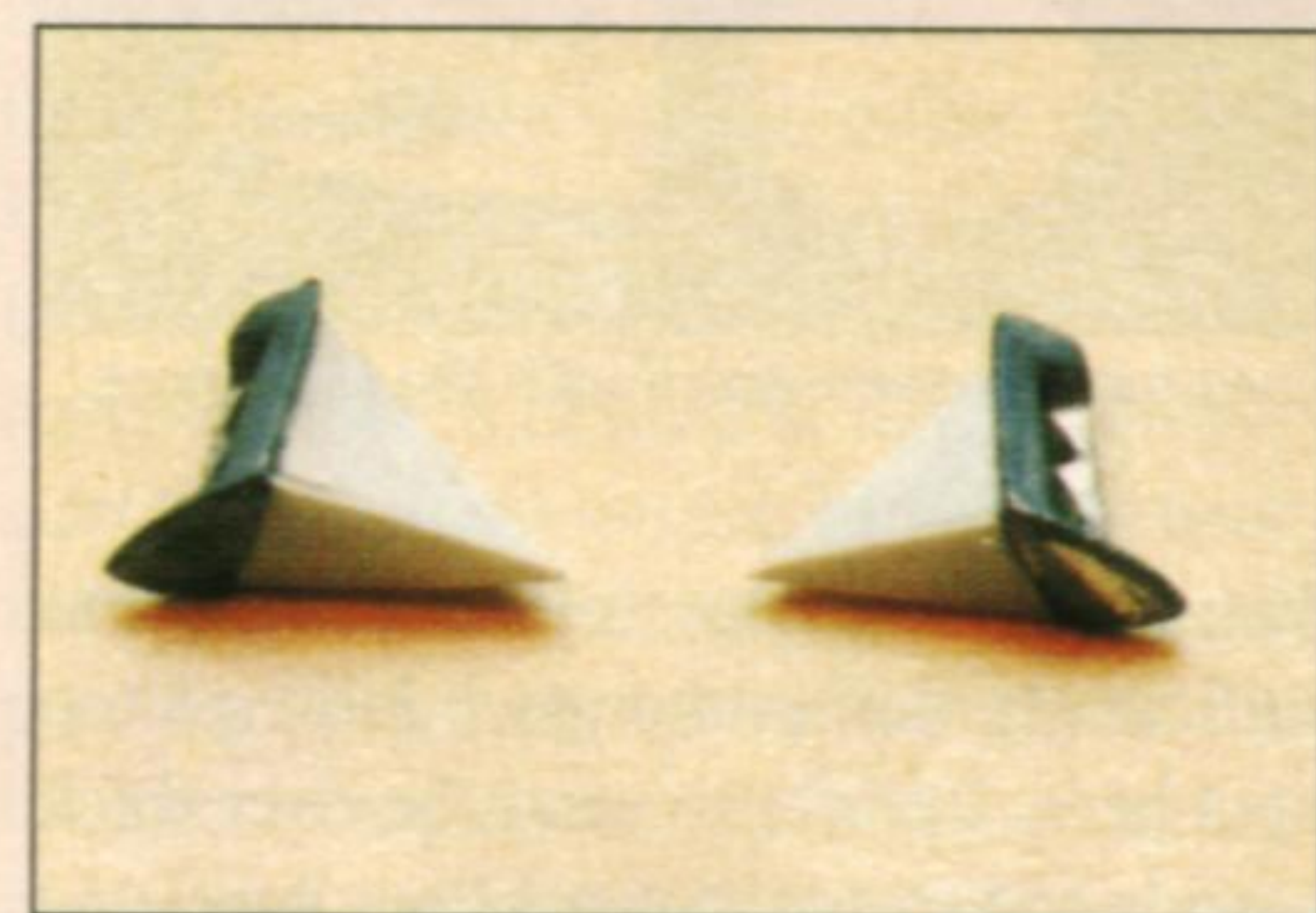
brakes deployed. Luckily enough this was fairly easy to achieve, even at this late stage. The pieces that needed to be removed were cut out by repeatedly scribing over the relevant panel lines, and gently snapping off. Bulkheads were manufactured from plastic card with spars and ribs from rod. The airbrakes were made from the removed kit parts, with the flaps constructed from more plastic card and rod. Actuating mechanisms were added later following painting, and were fashioned, using photographic references, from thin rod and stretched sprue. The fin mounted pitot tube was constructed from a section of sewing needle, sleeved in heat stretched plastic-tube and superglued into a pre-drilled hole.

The white metal undercarriage units were constructed with a minimum of fuss with 'flats' filed onto the wheels. Vacuum-formed undercarriage doors were removed from their backing sheet and added along with the undercarriage units following painting and decalling.

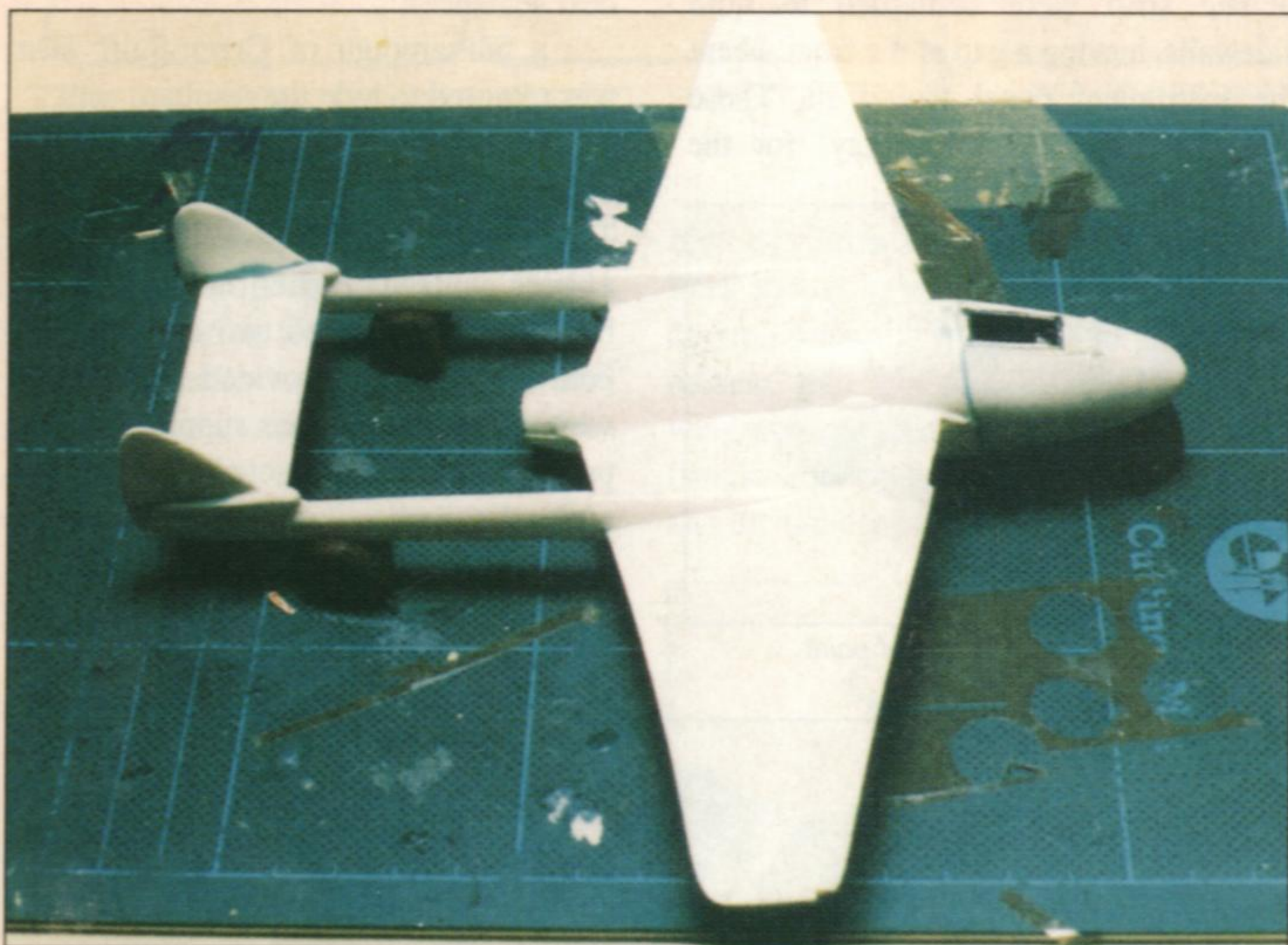
The FB.9's white metal pilot's 'bucket' seat was painted semi-matt black with the

lumber pad in red/brown leather - whether this is accurate or not is another matter - it looks nice! Straps were manufactured from buff envelopes with buckles from my ever dwindling supply of Re-heat items. The seat was then mounted on a piece of plastic card and carefully manoeuvred into the cockpit aperture and superglued in place.

Unfortunately, Aeroclub do not provide parts for the (very visible, thanks to the clarity of the canopy) cockpit coaming or for the area aft of the seat. Much as I tried I just couldn't find adequate photographs to assist me either. So using a little guess-



White metal intakes are supplied, trunking has been added from plastic card



Just discernible in this view are the plasticine 'blobs' to support the tail-booms used in the FB.9's rubber 'jig'...

that the correct amount of plastic was removed. Once each boom was built up the tailplane was constructed with the trailing and leading edges thinned as much as I could manage without destroying each part (and my nerves) totally. Small tabs were inserted to aid the alignment to the tailplanes and, for the T.11, the finlets. Slots were then opened in the tail booms to take the tabs. With the main sub-sections completed attention

superglue was used to re-glue and hold while the plastic cement cured. Needless to say when it came to joining the T.11's components together, the same mistake was not repeated (you're never too old to learn). A further application of filler and subsequent sanding down led to the next stage, the re-scribing of the panel lines.

It was while scribing these panel lines on the FB.9 that I decided that the model would look better with the flaps and air-



...and the T.11s card-board box 'jig'

work, and in conjunction with the references I did have, a gun-sight on the coaming, radio equipment and armoured plate/head rest, were fashioned from plastic card and rod. Thin fuse wire was used for the radio wiring. Both cockpit areas were painted in semi-matt black followed by a dry-brushing of light grey. The end result looked okay, even if perhaps not 100% accurate!

Both canopies were to be portrayed open. I had no problems in fitting the single seater's - this being carefully removed from the backing sheet (there are no spares provided, but luckily I had the luxury of the two kits to help out if necessary!) and separated the wind-screens from the hood. After gently trimming the canopy parts and cleaning up the fuselage guide rails on the FB.9, the wind-screen was glued in place with Kristal-Kleer, and when dry, secured in place with superglue, applied in small 'droplets' using a thin piece of wire, this windscreen was not going to move! The surplus superglue was sanded down and a smear of green stuff filler applied to fill the gaps. The FB.9s 'rubber' sealing at the rear of the wind-screen was manufactured from white square sectioned rod glued in



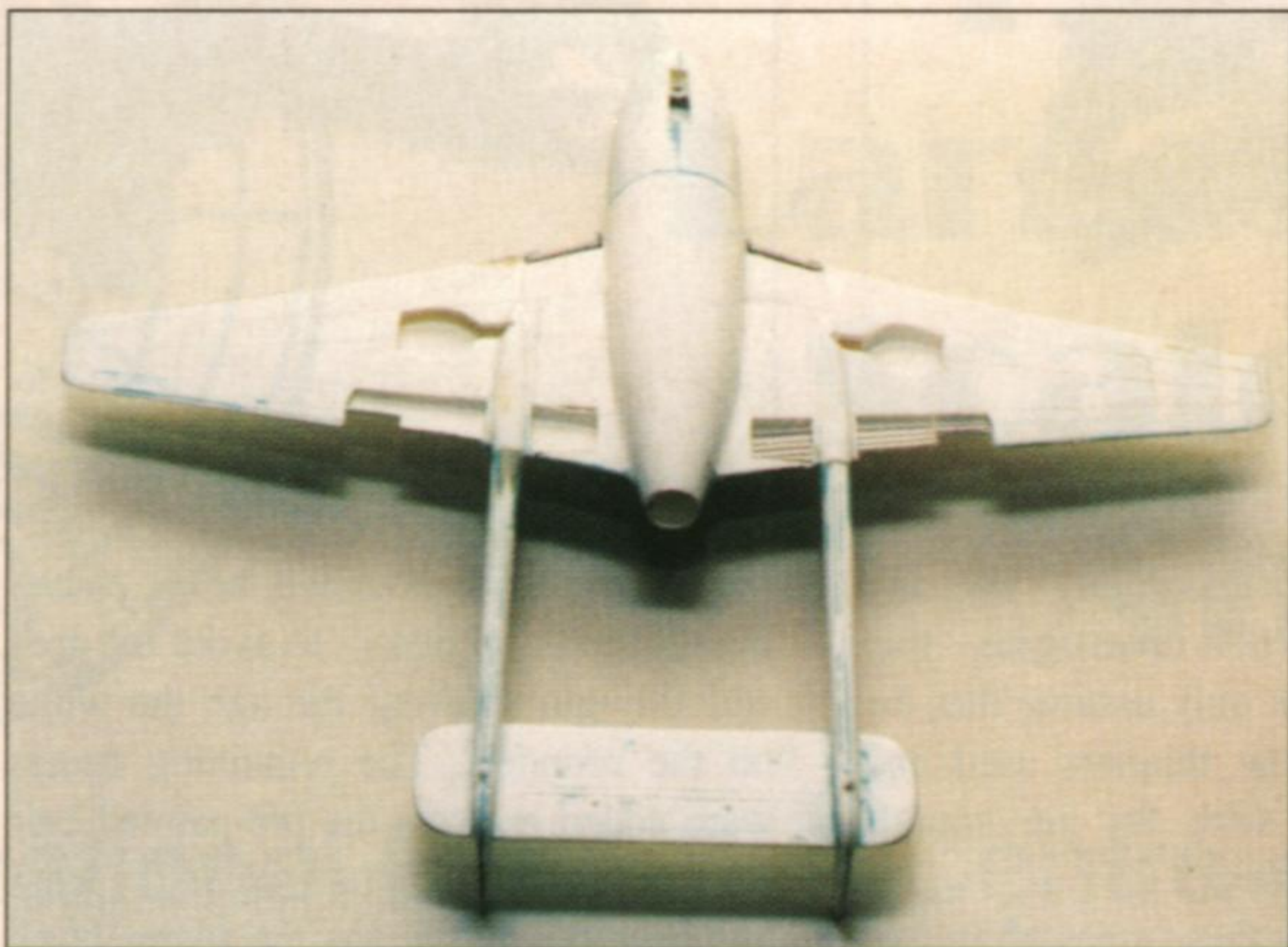
Plenty of Milliput was used to 'fair-in' the intakes. Of note here is the vac-formed air conditioning unit fairing immediately in front of the intake

place with Krystal Kleer and painted in Humbrol black/grey. The fairing at the front of the windscreen needed a little attention to make it blend in with the fuselage, and it was on to the painting stage. While the single seater's canopy proved to be easy to fit, I had no such good fortune with the trainer's. This canopy needs to be cut into three pieces, the windscreen, the hatch and the rear fairing. The demarcation lines are very finely engraved and are incredibly difficult to identify. My first attempt at opening this canopy was a spectacular flop...and, due in part to a house move, prior to completing this area of the T.11, the spare that I did have from the first kit went AWOL! Luckily Aeroclub were quick to send me a spare canopy, thank you. This time I managed the split a lot better, due to the application of masking tape to act as a guide for the cuts and to protect the adjoining clear perspex. The wind-screen and rear fairing were fixed on as per the FB.9, but the hood required some extra internal detailing along with some kind of representation of the hinges/actuating mechanism at the rear.

Painting/Detailing

Vampires entered service in the standard war-time colour scheme i.e Dark Green/Ocean Grey over Medium Sea Grey with Sky bands and squadron codes. Serials would have been in black

with Type C/C1 roundels. Later Mark 1's received Medium Sea Grey upper surfaces over PRU (or 'Cerulean') Blue undersides with type B (red/blue) roundels, this being superseded by aluminium paint, not natural metal as stated in Aeroclub's instructions. Squadron markings originally consisted of the war-time procedure of letter coding, but thankfully gaudier squadron schemes crept in. Camouflage was re-



Note the ribs & spars added to one side of the T.11

introduced later, this time Dark Green/Dark Sea Grey over aluminium or PRU Blue. Some single seaters also received yellow 'T'-Bands, especially those serving with the FTS units, these being applied in a similar fashion to the T.11s. It would appear that the T.11s were either aluminium overall or grey (I've seen references for this colour being Light Aircraft Grey or Medium Sea Grey, it is of course possible that both colours were used) with or without the yellow 'T' bands, or Day-glo areas. Some would appear to have received full camouflage as well.

FB.9

Xtradecal's sheets feature decals for WR120 of 213 Sqn which was the individual aircraft that caught my eye. This particular aircraft featured gloss black nose/fins and part of the tail-boom, with gloss yellow fairing bullets. The rest of the airframe was in aluminium paint. This particular aircraft was the personal mount of 213's C/O based at Deversoir and this scheme was specially commissioned for the Coronation Review at Odiham in 1953.



The underneath of the completed FB.9

An initial under-coat of medium grey was applied, by brush and the inevitable imperfections attended to. It was at this stage I noticed I had left off, or rather not included, the prominent shell ejector chutes, aft of the canons - twit! This was easily rectified by my scalpel, although there is now a little 'see-through' into the fuselage! While I had my scalpel in my hand I also opened up the hole for the single landing light - situated below the



Ready for a coat of Aluminium paint. Strips of tape & Maskol were used to mask the pre-painted black & yellow areas of the FB.9

starboard wing. Another coat of grey was applied and sanded down with fine wet n' dry paper.

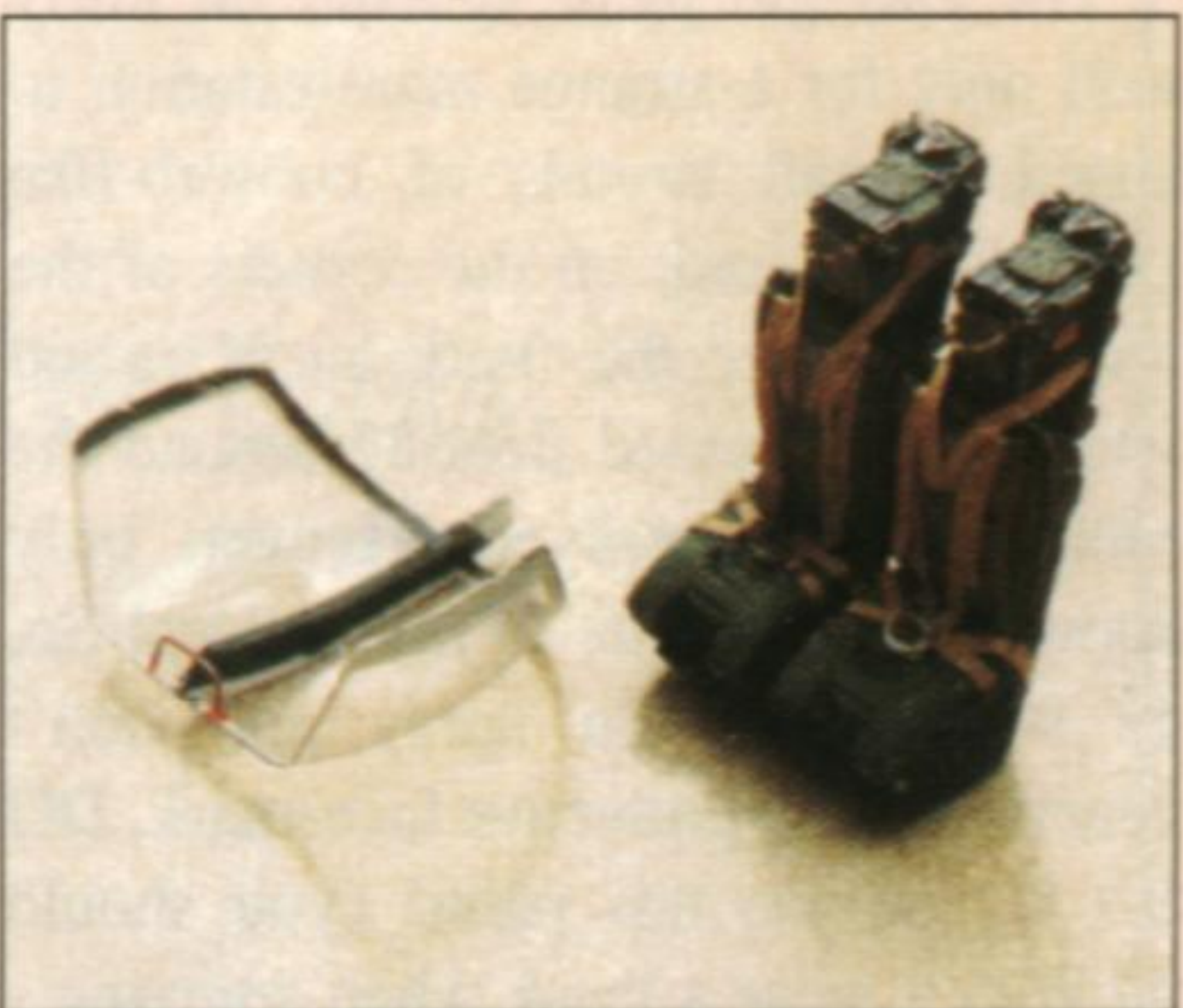
I had initially intended to use my airbrush throughout on this model, but decided that the difficulty in masking the yellow fin bullets and black areas wouldn't be worth the hassle. I therefore applied an undercoat of white, for the later application of yellow, with the black nose, fins and tailbooms given an initial coat of semi matt black with a new '00' sable paintbrush.

With the undercoat dry a couple of coats of gloss yellow and then gloss black were applied, and when they were dry, these areas were masked with small pieces of tape and Maskol. A couple of coats of Humbrol Metalcoat gloss aluminium was then sprayed on, and after allowing a day for them to dry sufficiently, some 'touching up' was attended to on the black and yellow. A few strips of aluminium decal strip was also used to 'straighten up' the edge of the curved black area. A coat of Johnson's Kleer was then applied to seal the paint and enable handling of the model without removing any of it and then the decalling

could start. Black decal strip was used for the windscreen frame with silver strip for the hood's lower and rearmost frame (the front of the hood being left in clear perspex). Xtradecal's decals are very thin and are easy to apply, although I did have problems in applying the '0' to the main wheel door, due to the doors shape, I must hasten to add, not the decals.

With the decalling complete the whole model was gently washed, with luke-

warm soapy water, being careful not to wash the Kleer off! This removed any residue of glue from the decals and another coat of Johnson's Kleer was applied to seal the decals. This in turn was followed by a coat of semi-matt varnish, sprayed on to tone the gloss down a little. The underwing landing light was made from the tip of a 1/72nd scale missile from the spares box, hollowed out and glazed with Kristal Kleer and fixed with fuse wire and more sprue and antennas added using stretched sprue. The pre-decalled hood was added with more Kristal Kleer.



The T.11's ejector seats awaiting buckles to be added to the harnesses with the canopy ready for installation

T.11

I quite liked the idea of a grey and Day-glo T.11, and such a machine, WZ549/F of the Central Air Traffic Control School, based at Shawbury in 1969 and used as a 'clockwork mouse!', featured on the Xtradecal sheet. I had a sheet of red Day-glo stripes manufactured by Tauro which would be okay for the stripes on this aircraft's tail-booms and nose, but not large enough for the wing-tip areas. These areas therefore required painting. Initially I 'trilled' Humbrol's Gloss Blaze, but this looked a little too orange in comparison with the decal stripes. So, a bottle of Testors Day-glo Red was purchased and this fitted the bill exactly. Day-glo is not the easiest of finishes to apply (I must find out how 'Dynorod' manage to paint the whole of a van in a



More views of the FB.9



similar shade successfully!). A good undercoat of white is required and to compound my frustrations on applying this paint, Xtradecals instruction sheet is vague on how far the wing-tip Day-glo areas extended. Considering the excellent quality of their decals I find this very disappointing, certainly an area that could be improved! This lack of clarification, and any alternative suitable reference, meant a 'guesstimate' was required. I based this on the side-view sketch in the instructions.

A coat of light grey was applied to the whole model, and the inevitable imperfections were attended to. The intended Day-glo areas on the wing tips had a couple of coats of Humbrol 130 satin white applied and once this had dried the Day-glo was applied. It took several evenings work to achieve the desired density, as this paint needed thinning down to a very watery consistency.

The Day-glo paint sprayed on fairly well only for a strange manifestation to appear! Small strands of cobweb-like Day-glo appeared, on the corners of the model and over the work surface, and were also witnessed floating around the room while I sprayed. Heaven only knows what its done to my insides! So, be warned, if you spray and don't generally use a protective face-mask, DO SO if you use this paint! (you should ALWAYS wear a mask when spraying - Ed) As there is little chance of Agents Dana Scully (more's the pity!) and Fox

Mulder (more, 'mores the pity' says my wife!) coming to investigate this phenomenon, I can only assume that the paint reacted to the thinners used and dried on contact with the air, sounds feasible enough, doesn't it?

Prior to masking these areas off so that I could then spray the Light Aircraft Grey on, a good couple of coats of Johnson's Kleer was applied, in this way if the masking tape was going to remove

applied, the wing roundels being placed over white decal disks - to avoid the grey and Day-glo showing through the white on the roundels. The remaining decals were added as were the pre-painted pair of 'Drop-tanks' ('half-inched' from Hobbycraft's NF.10, via the spares box). With the addition of the various antennae, and following a coat of semi-matt varnish (A drop of Johnson's Kleer mixed with Microflat) my T.11 was complete.

crispness of the mouldings is first class and the use of white metal not only saves a very tricky job of sanding down tiny parts, but adds a considerable amount of weight, especially in the nose area. In general this kit is well enough thought out to avoid causing any modeller too many problems, and it can therefore be recommended to expert and novice alike.

The Vampire being of diminutive proportions needs models of this scale to adequately portray the details that would not be so evident in 1/72nd scale. Now all I need to do is find something to do with my redundant vac-form parts, surplus to both kits! (These include two NF.10 noses, one single seater nose and a T.11 two seater nose, not to mention a few tail booms!). I should really attempt the NF.10 version, and wouldn't mind having a bash at converting the single seater to a Mk 1. These should find their way onto my work-bench over the next year or so. Aeroclub are also planning, and indeed may have done so by the time this article reaches the book-shelves, a series of Venoms, eagerly awaited by this modeller. Add to this Aeroclub's Meteors and the injection moulded 'quarter-scale' Hunters (plus 1/32nd scale) and Lightnings winging their way in this year, I'm left with a bit of a (very welcome) problem, when do I get the time to build them all and where do I put them when I do?! Yes, we RAF/RN modellers have certainly never had it so good!

Bill Clark



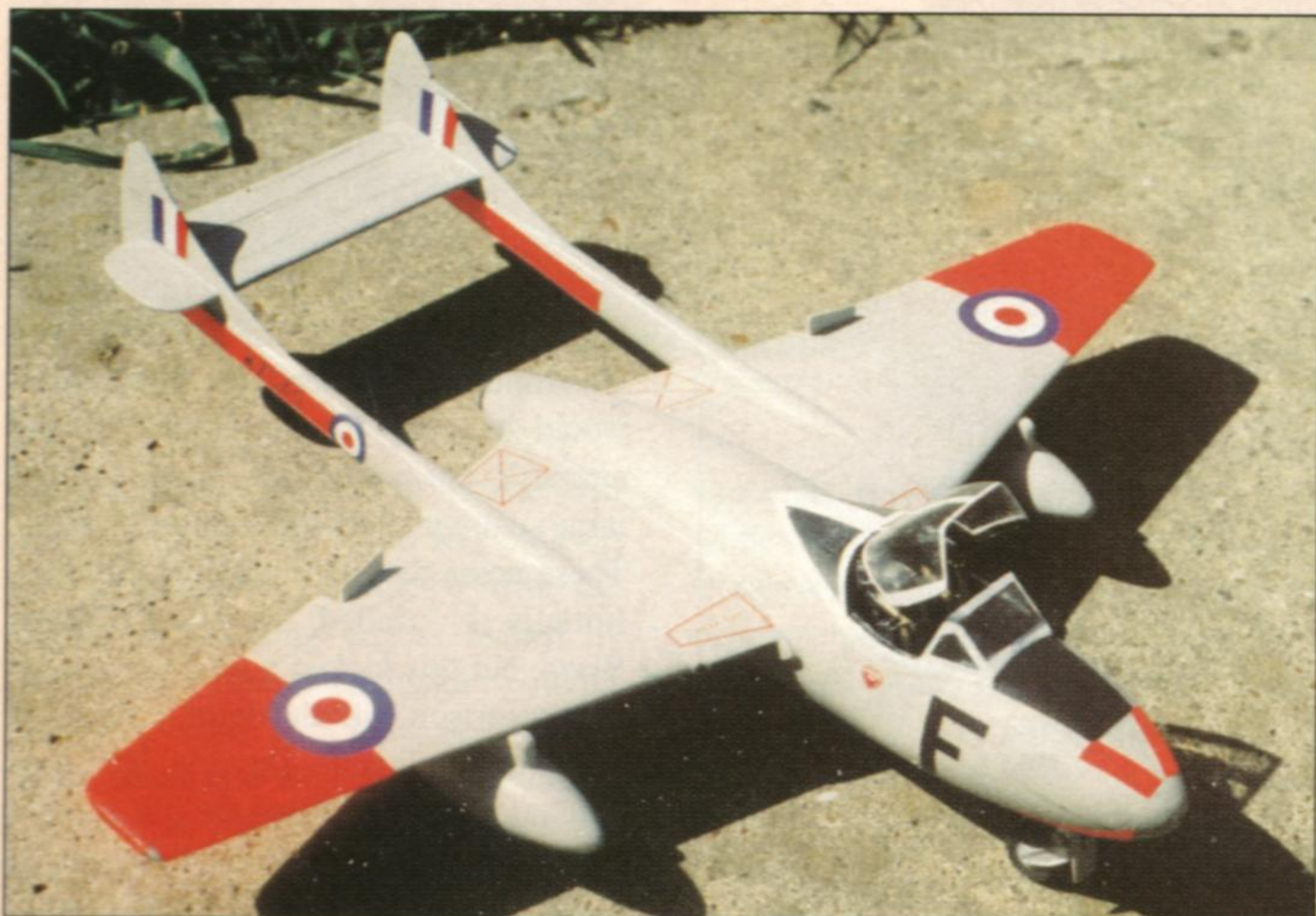
The 'Vampire Pair'...roll on the Venoms!

anything, it would remove this rather than the Day-glo paint.

With the grey applied, the black anti-glare panel was added. The canopy framing on this particular aircraft was in white, and this was represented by white decal stripes over black (for the internal framing). White decal stripes were then applied to the tail booms and noses to act as an undercoat for the opaque Day-glo decals. The rest of the decals were

Conclusion

My first experience of Vacuum formed modelling (Rareplanes 1/72nd scale Meteor F.8) was some 12 or 13 years ago. In those days vac-form model's under-carriage units and cockpit areas were all vacuum-formed and I think that this was the main reason that it took me such a long time to attempt another! Today's examples epitomise the skill of the manufacturer's art of producing vac-formed models. The



The completed T.11

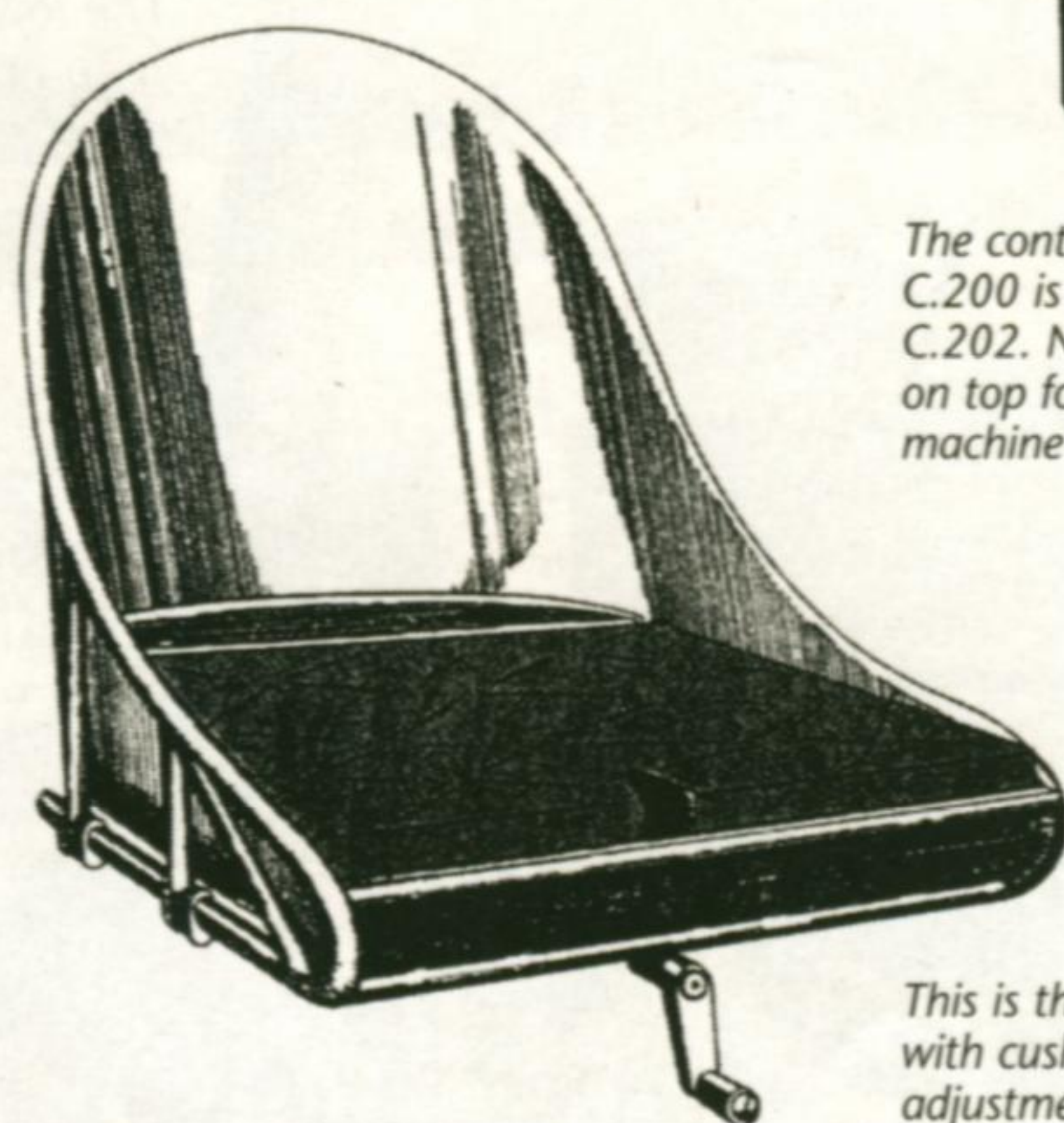


Aero Feature

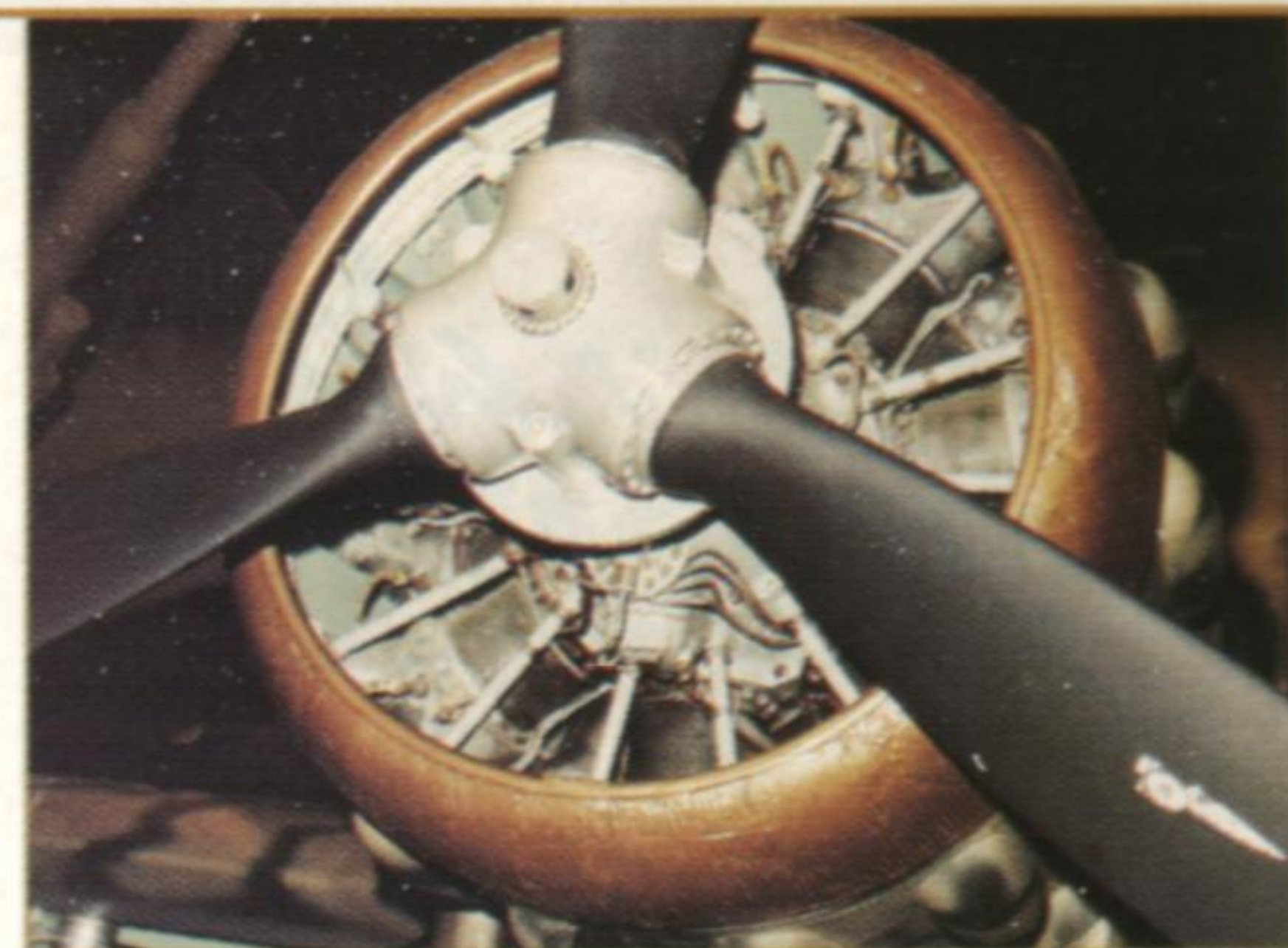
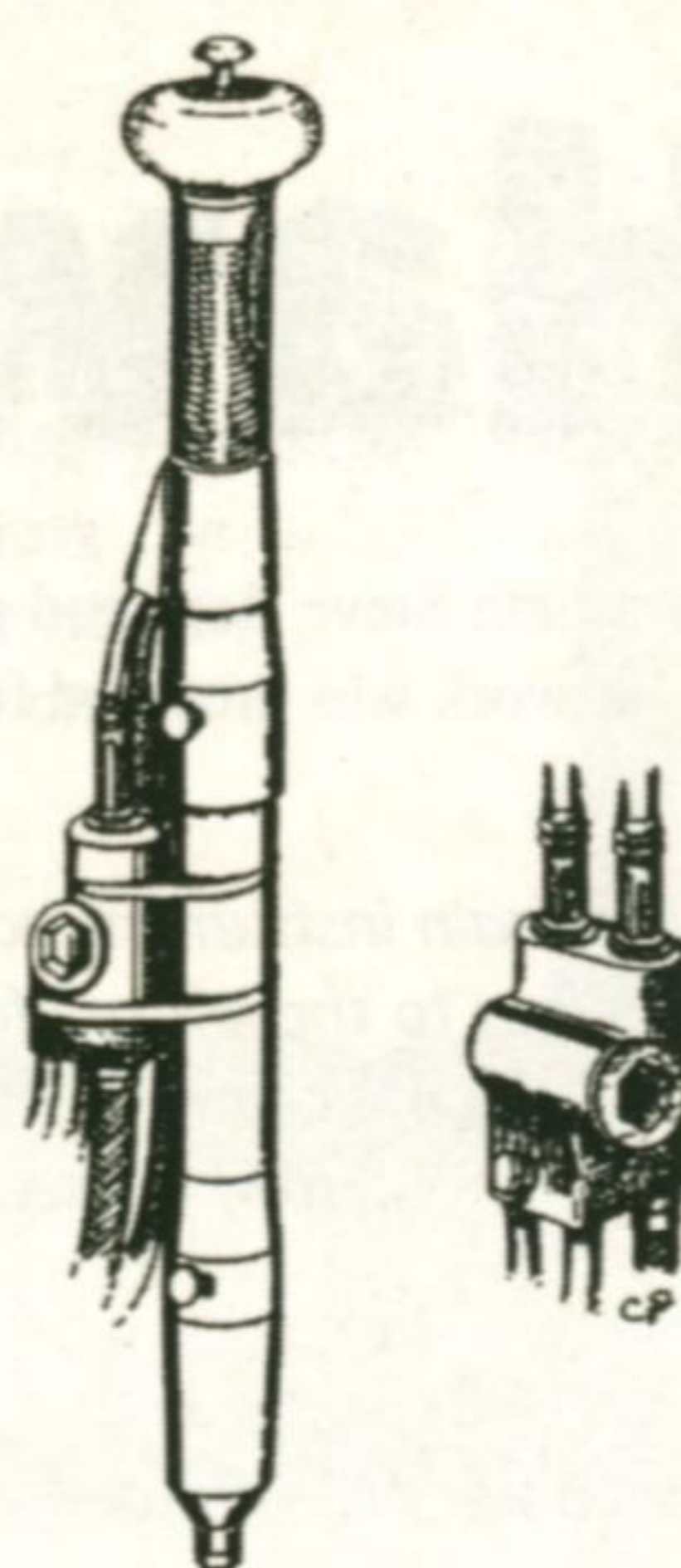
Macchi C.200 'Saetta'

See also Quick Build on pages 721 to 723

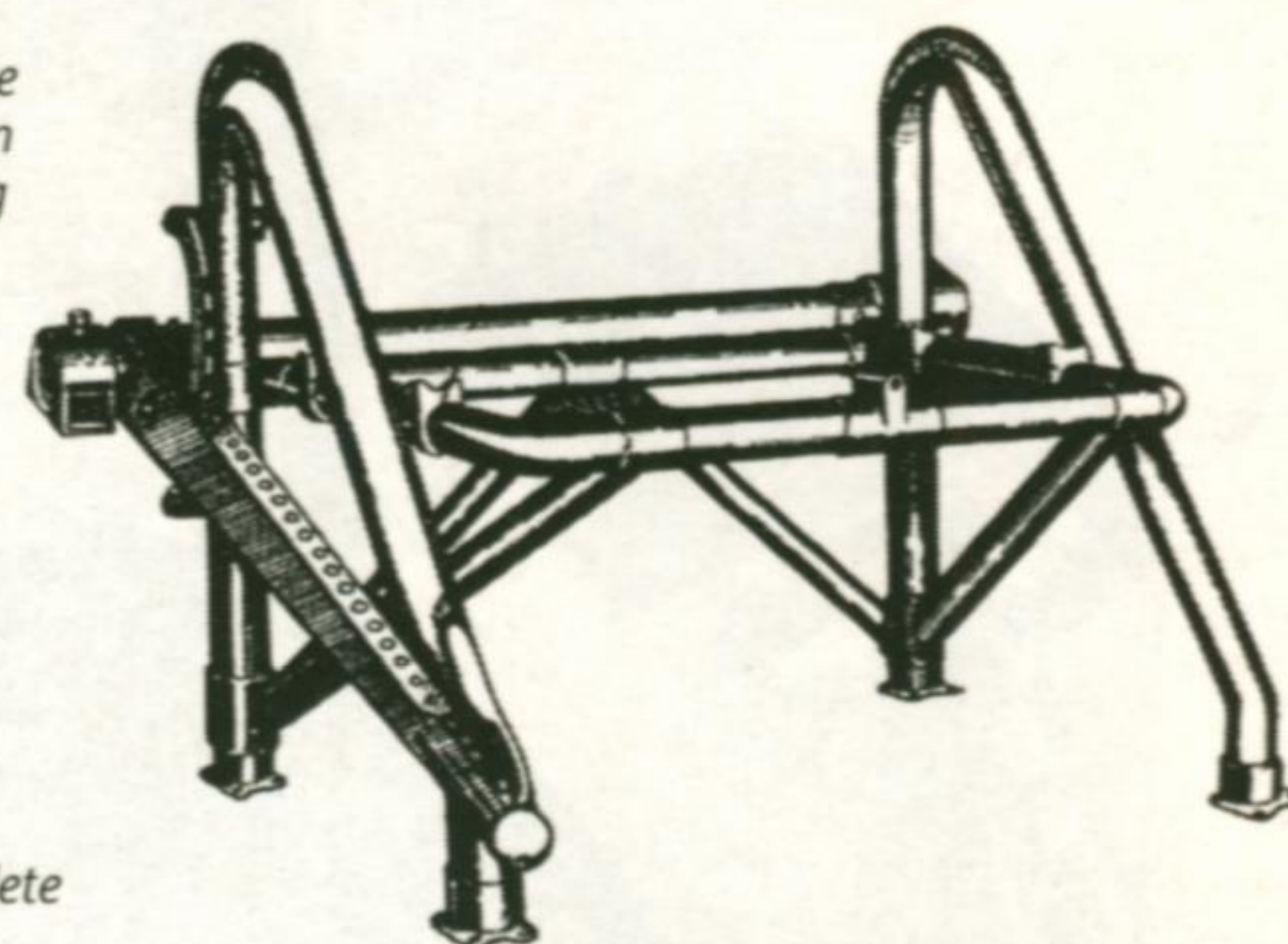
The six photographs depict the preserved Macchi C.200 which is currently on display at the USAF Museum at Dayton, Ohio.



The control column of the C.200 is similar to that of the C.202. Note the firing button on top for the nose and wing machine guns



A good view into the front of the engine cowl. The copper forward ring is well illustrated here, as the effect created by the way in which it is constructed (difficult to replicate in smaller scales!). Of interest is that very plain prop boss and the various bits of pipework etc you can see fitted around the engine



This is the framework which supports the seat. Note that this style of frame is common to the C.200, 202 and even the 205.

This view well illustrates the copper forward ring of the engine cowl. Of note are the ribs inside of the cowl and the very simple and plain propeller boss

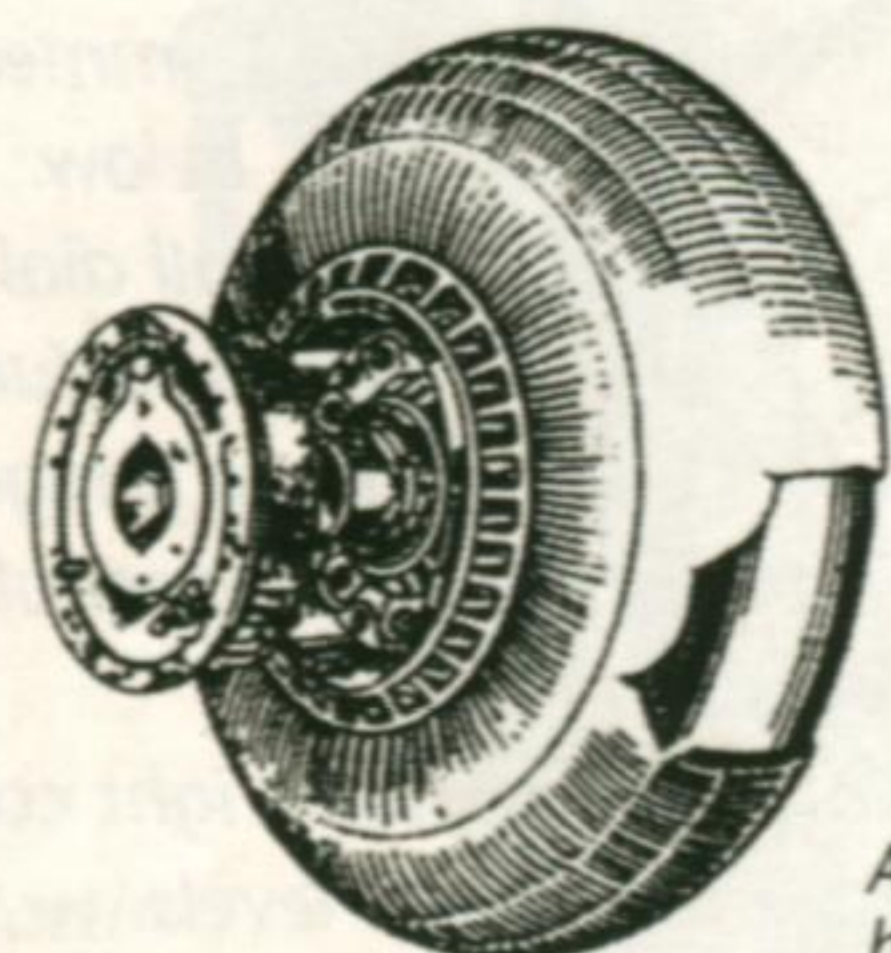
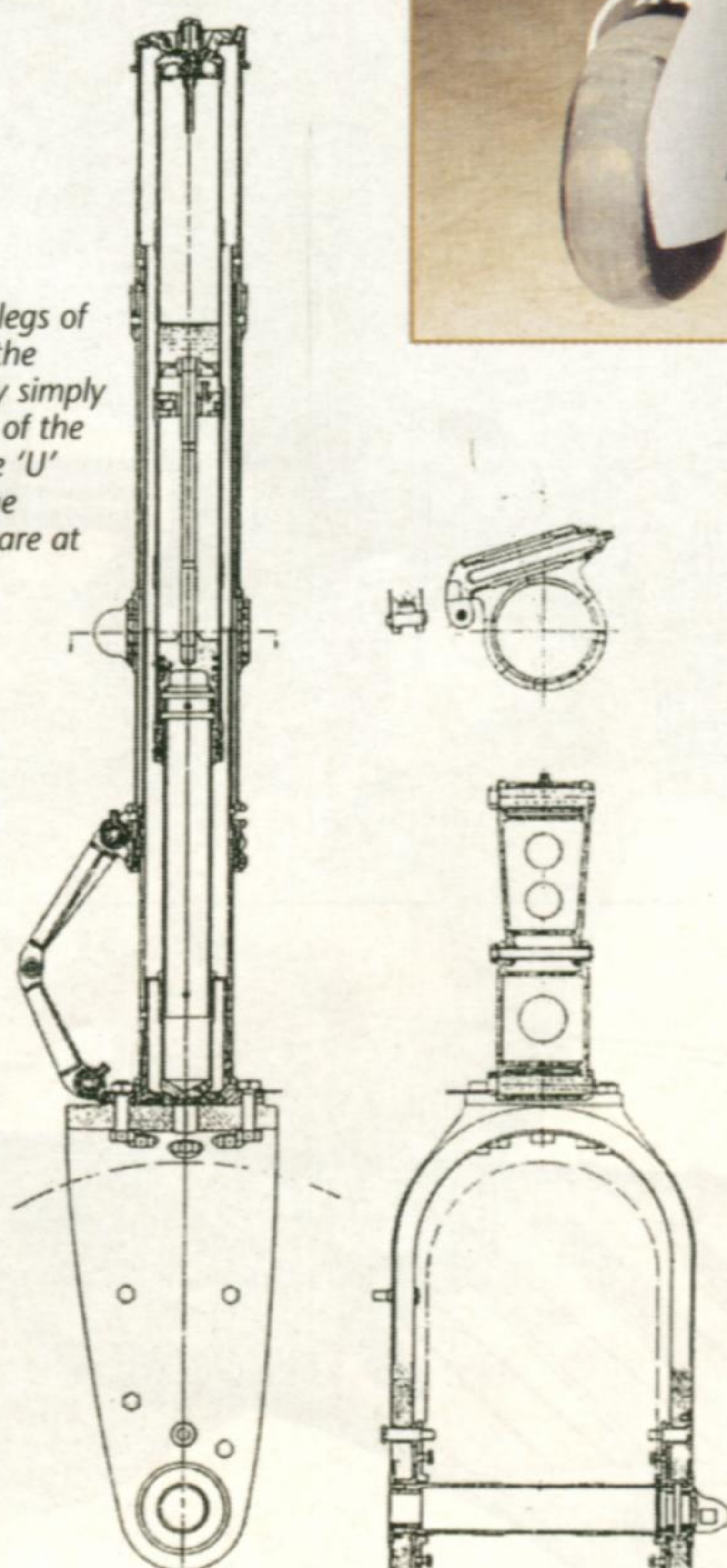


The starboard side of the forward fuselage. Note the cooling gills in the forward engine panels and the venturi tube below the cockpit. The small aerial mast behind the cockpit is of interest and the small loop you can see inside the canopy, is the release handle for the folding section

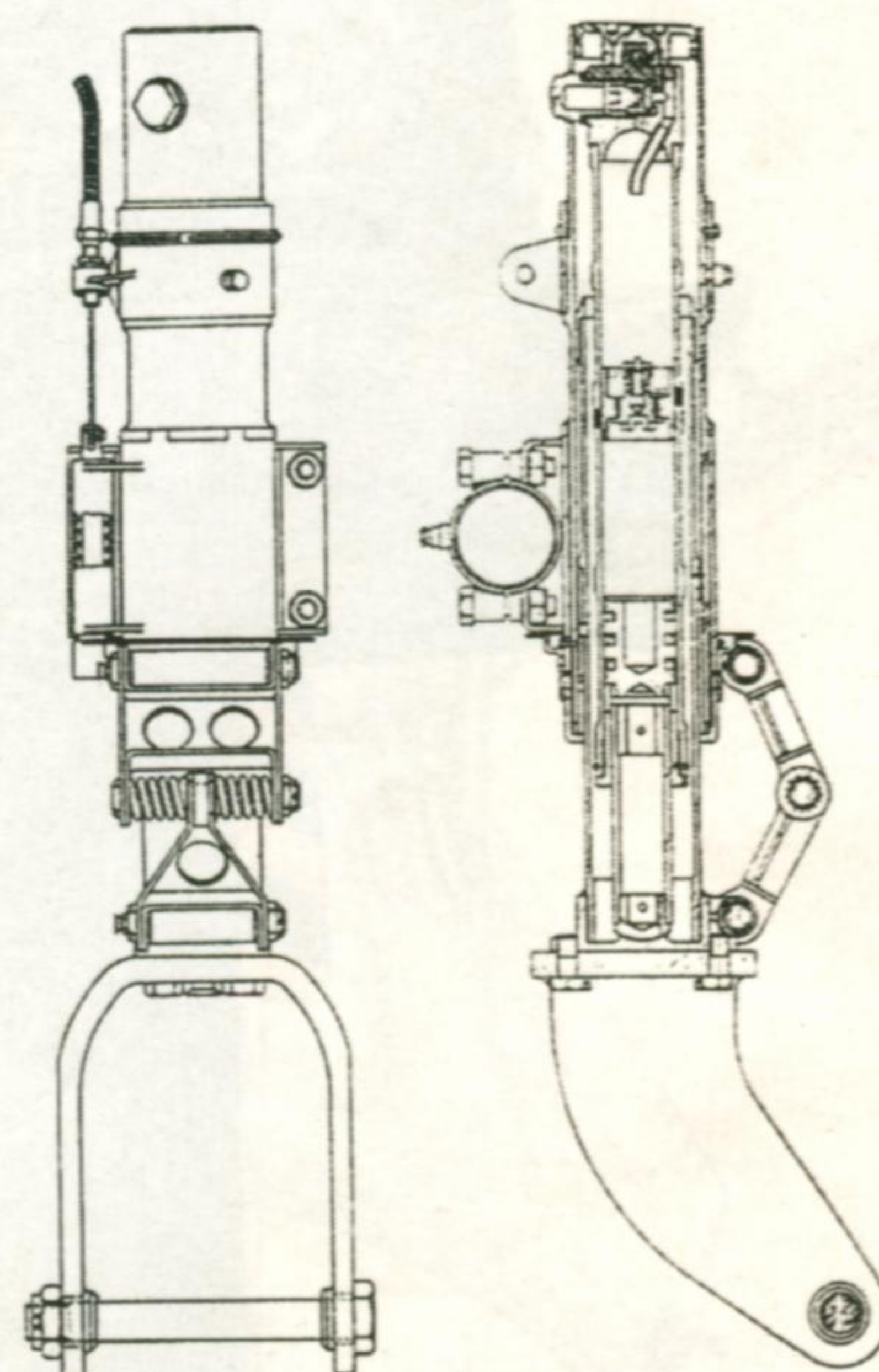
The port main oleo leg. Note the position of the upper section of the undercarriage door and the manufacturer's brass plate which is clearly visible at the top of the unit



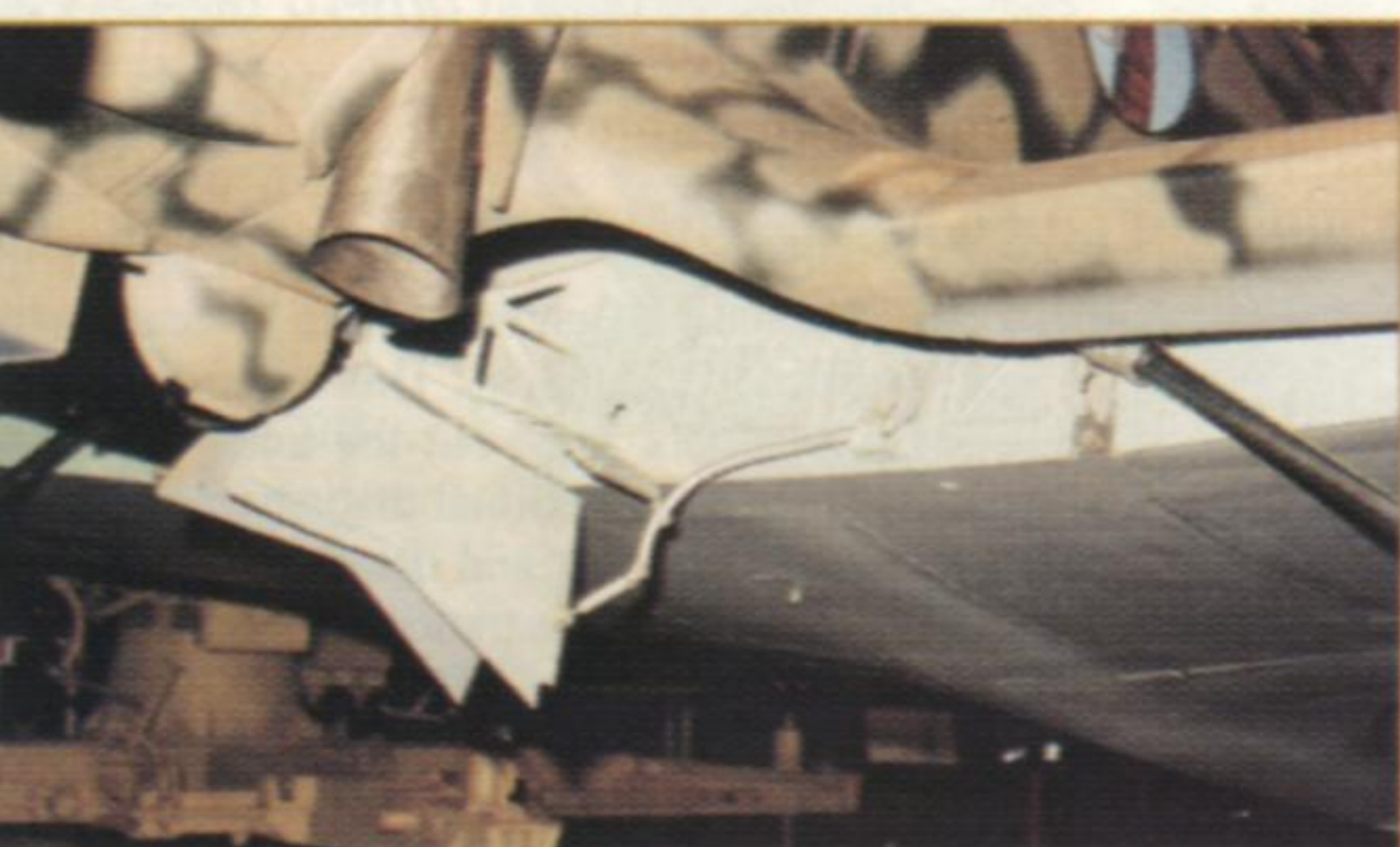
The main undercarriage legs of the C.200 differed from the C.202 and 205, basically simply in terms of the thickness of the leg. Here you can see the 'U' fork for the wheel and the compression links which are at the back of each unit.



All of the Macchi '200' series had these 600x200x216mm main wheels.



The C.200 had a fixed tail wheel unit and this shows both the visible yoke element and the oleo damper which is housed inside the rear fuselage.



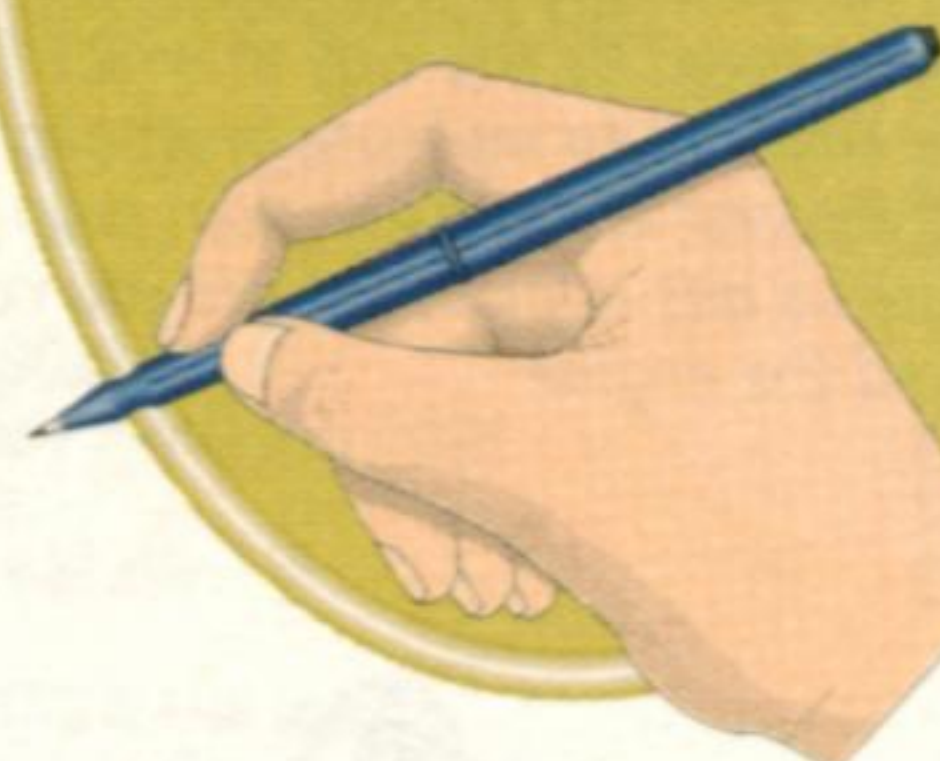
A view up into the wheel wells. Note the extremely large (and very agricultural looking) exhaust pipe. The undercarriage inner doors are operated via a hinged arm which is activated when the main wheel hits the buffer blocks which are situated about 2/3rd of the way along the arm



A point often missed from many models is the pitot. Here you can see that it is a somewhat complex affair, with the pitot at the bottom and the static head on top. The rear section is matt black, while the forward section is aluminium

Aircraft Sketchpad

by Steve Benstead



Hawker Hunter

This month Steve Benstead picks a topic which is very dear to him, namely the Hawker Hunter. This artwork was prepared for use with the Academy F.6 kit and is therefore predominantly of that mark.

The main instrument panel. Dominating the centre top is the reflector gun sight unit. The protected yellow/black switches to the left are for the jettison of underwing stores. To the right is a fire warning lamp and g-indicator. In the centre of the main panel are the standard blind flying instruments. Looking from left to right, top row, we see the power on/off switch for the elevators, airspeed indicator, artificial horizon, the rate of climb indicator and the Nav 1 indicator.

The lower row of instruments, again left to right, comprise a push button for the powered ailerons, the mach indicator, altimeter, artificial horizon, turn and slip indicator and RPM gauge. In the bottom left corner is the flap indicator and the dial in the bottom right is a clock.

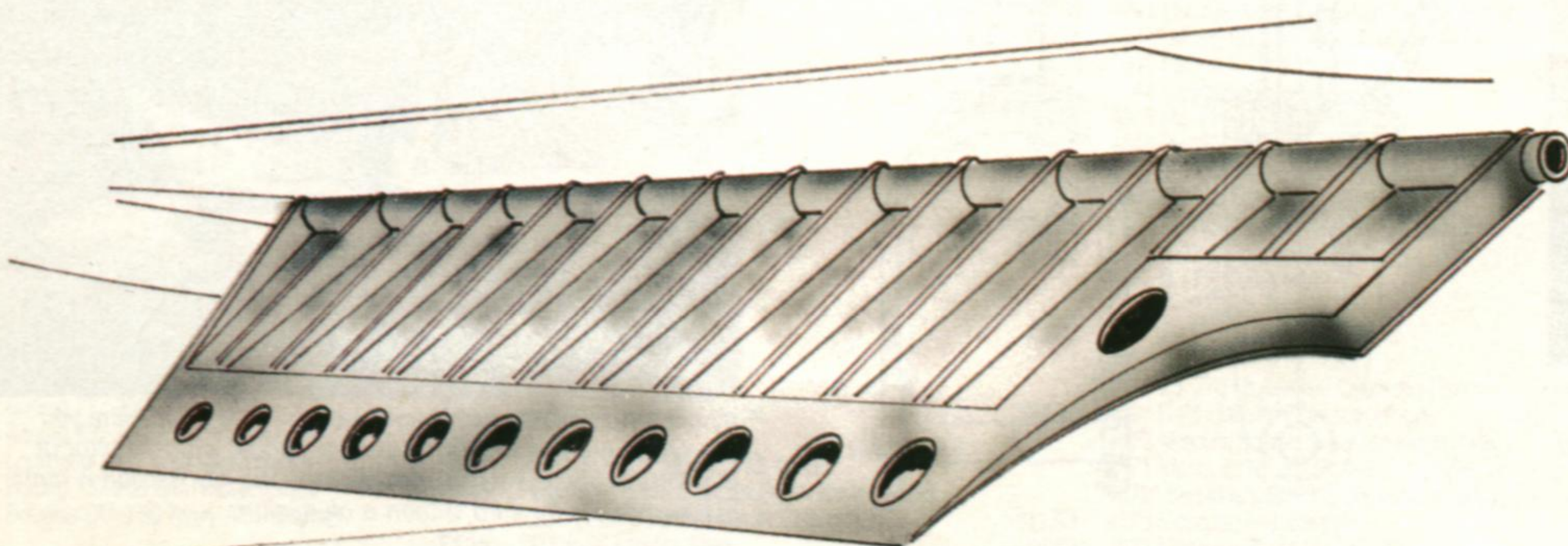
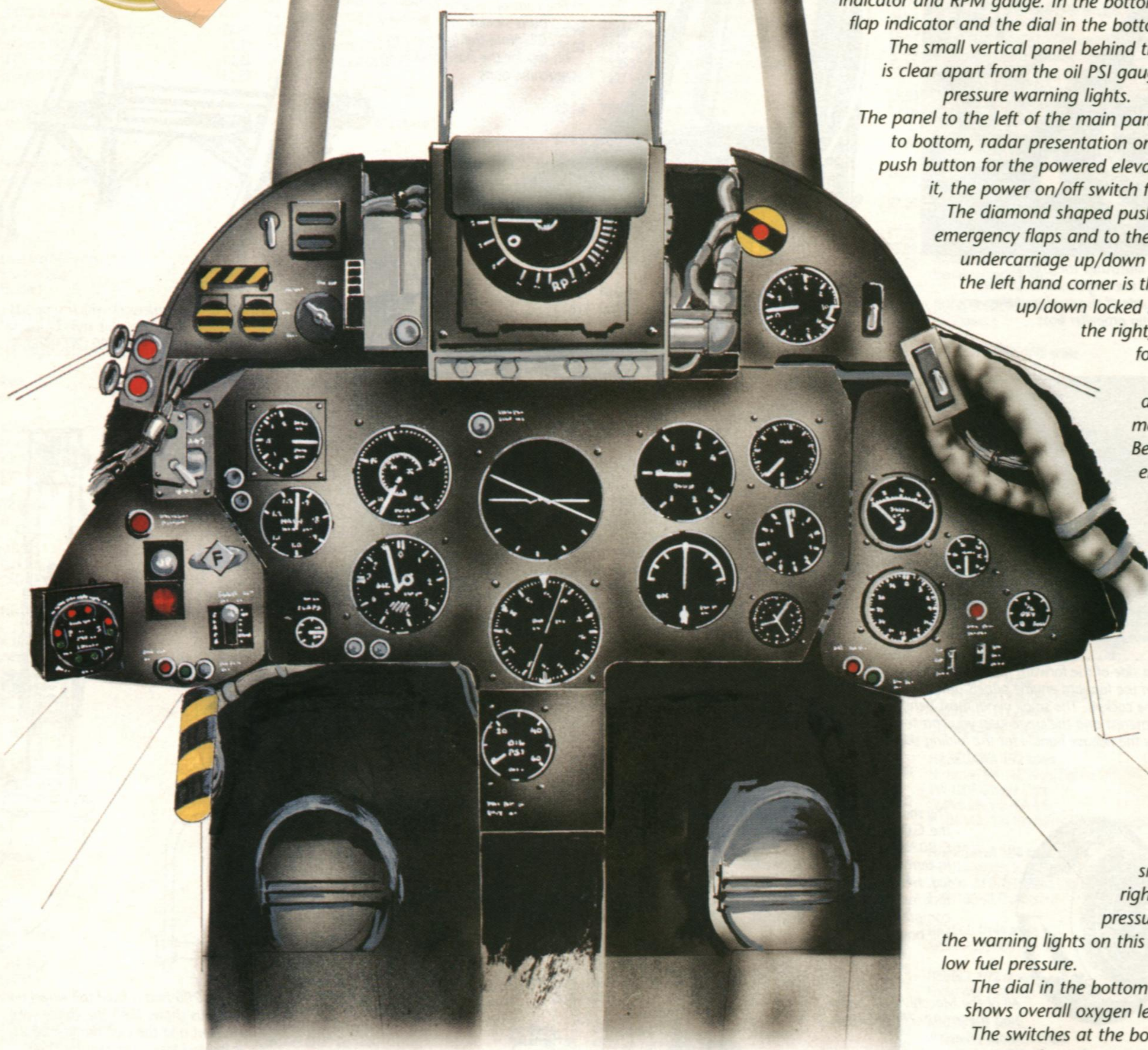
The small vertical panel behind the control column is clear apart from the oil PSI gauge and some oil pressure warning lights.

The panel to the left of the main panel contains, top to bottom, radar presentation on/off switch, a push button for the powered elevators and, below it, the power on/off switch for the ailerons.

The diamond shaped push/pull lever is for emergency flaps and to the left is the undercarriage up/down selector lever. In the left hand corner is the undercarriage up/down locked indicator and, to the right, warning lights for undercarriage malfunction and airbrake malfunction.

Below the emergency flap lever is the standard flap selector lever. The small panel to the right comprises, from top to bottom, exhaust gas temperature gauge with a large ADF dial immediately below. The small dial to the right is a fuel pressure gauge and the warning lights on this panel all refer to low fuel pressure.

The dial in the bottom right corner shows overall oxygen levels. The switches at the bottom of the panel are for gun sight brightness, gun camera on/off etc.



Colour Notes:

The interior of the 'Billy Bunter' was predominantly black, or 'Night' in official terminology. This was not truly black, being a very, very dark grey, but the tonal difference in 1/48th scale would be so minimal that any matt black will be suitable. All the warning and detail colours have been noted in the text for each illustration and as already noted, the wheel well interior tended to be the same colour as the airframe undersurface.

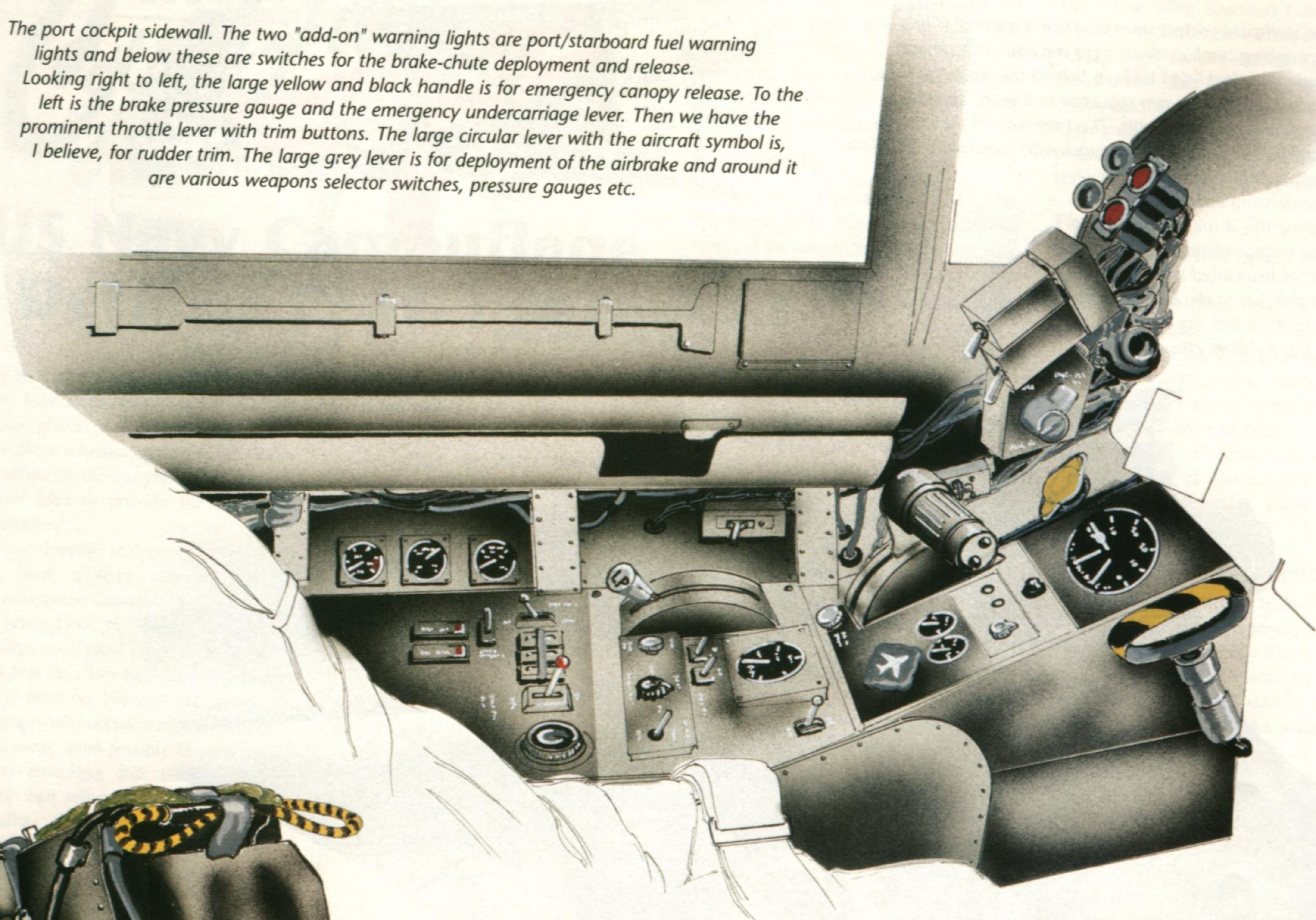
Main Reference Sources:

- Hunter AP's (Air Publications)
- Real aircraft at Duxford, Hendon and Bournemouth

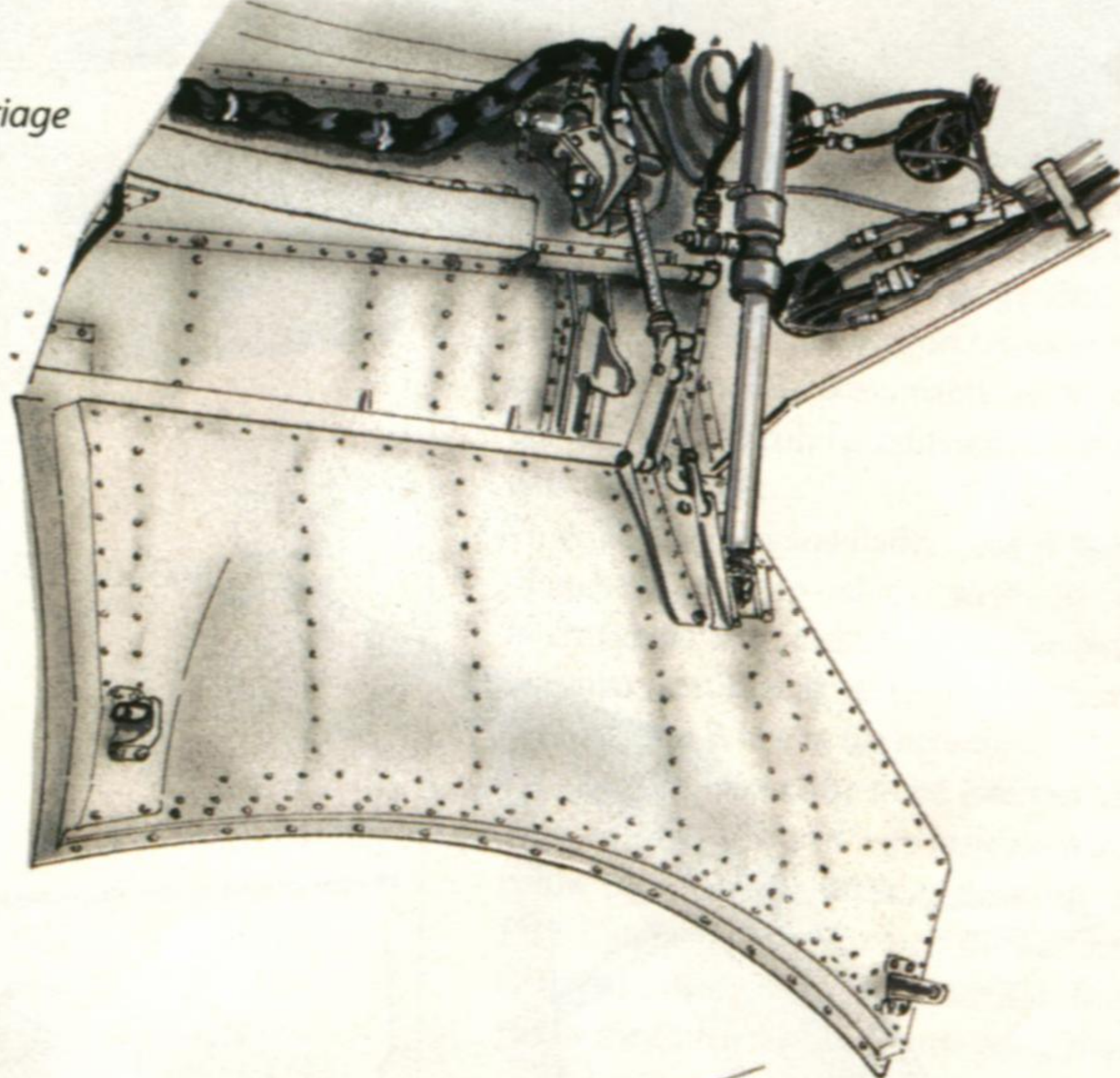
Misc sources:

A note of thanks to all the guys at Jet Heritage, Bournemouth, for their hospitality during my recent visit. (See page 683.)

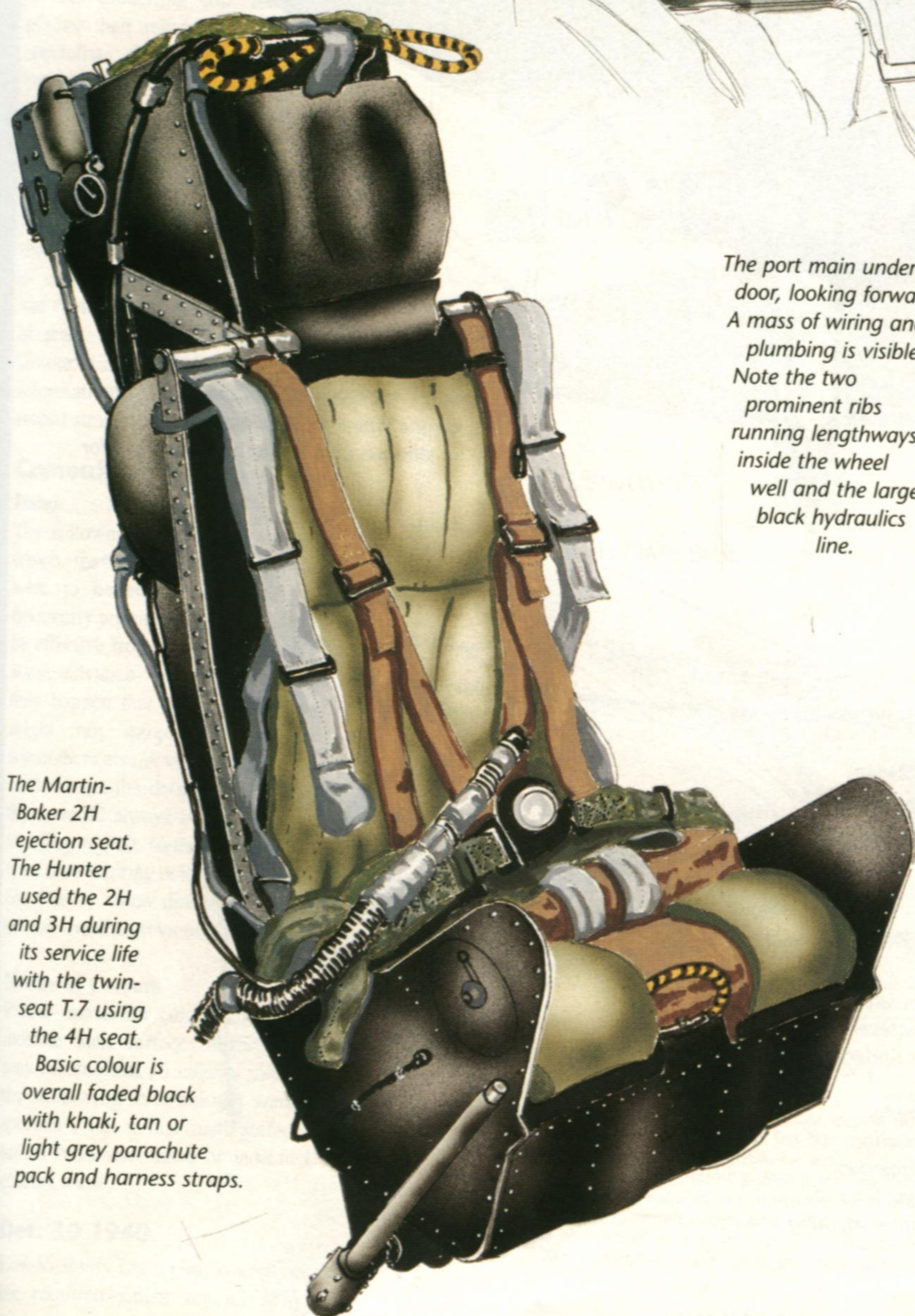
The port cockpit sidewall. The two "add-on" warning lights are port/starboard fuel warning lights and below these are switches for the brake-chute deployment and release. Looking right to left, the large yellow and black handle is for emergency canopy release. To the left is the brake pressure gauge and the emergency undercarriage lever. Then we have the prominent throttle lever with trim buttons. The large circular lever with the aircraft symbol is, I believe, for rudder trim. The large grey lever is for deployment of the airbrake and around it are various weapons selector switches, pressure gauges etc.



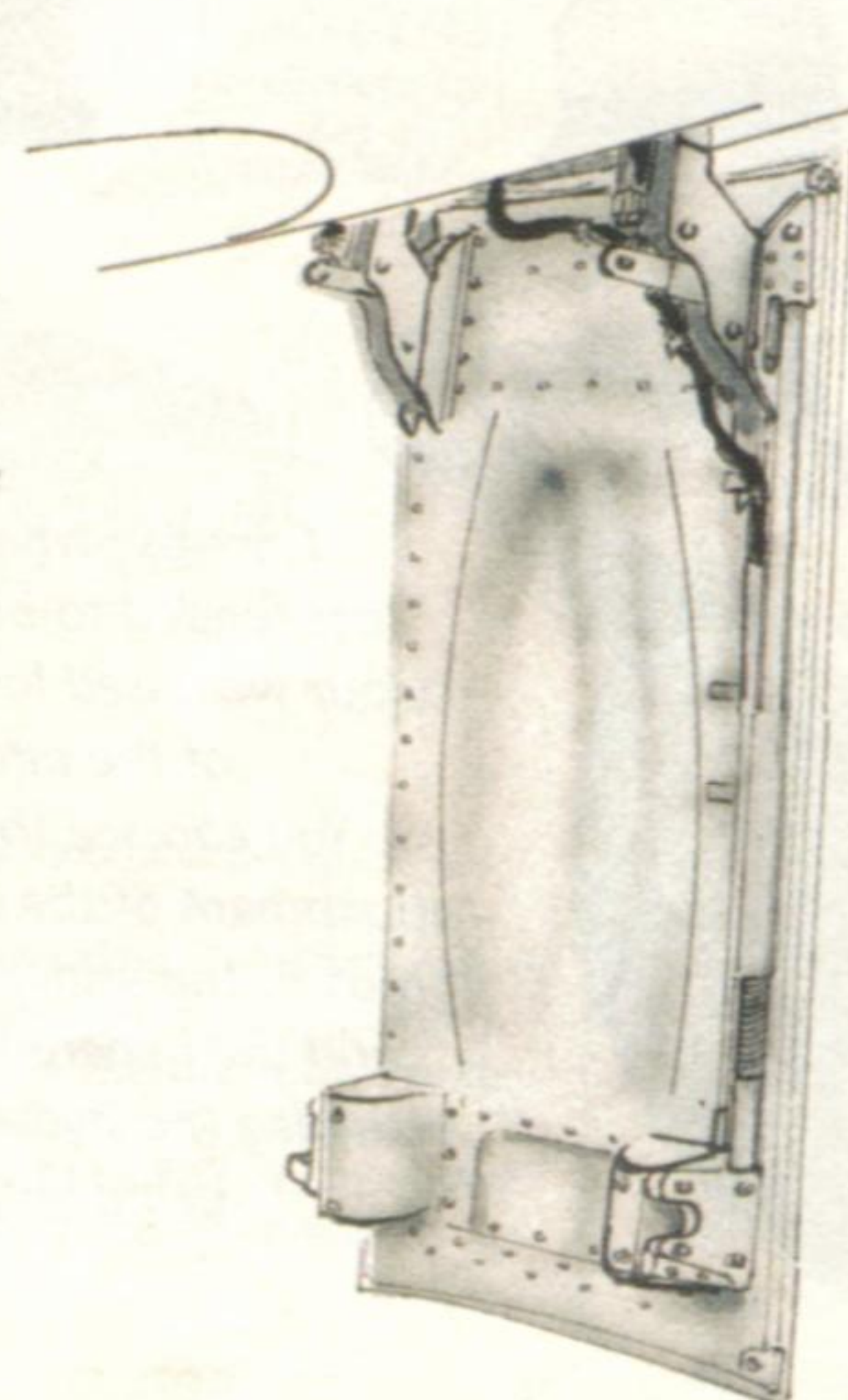
The port main undercarriage door, looking forward. A mass of wiring and plumbing is visible. Note the two prominent ribs running lengthways inside the wheel well and the large black hydraulics line.



The Martin-Baker 2H ejection seat. The Hunter used the 2H and 3H during its service life with the twin-seat T.7 using the 4H seat. Basic colour is overall faded black with khaki, tan or light grey parachute pack and harness straps.



The nose wheel undercarriage door was opened/retracted by two rods which connect to the hinge points at the front of the undercarriage door. These rods travel up along the front bulkhead and connect to a single actuating jack which is located in the top right corner if looking forward in the wheel bay. The bottoms of the two rods are just visible in the illustration connecting to the hinges.



The starboard cockpit sidewall. Here a mass of wiring and plumbing tumbles down from the main instrument anti-glare shield and tucks in behind the elbow guards. From left to right; oxygen regulator unit with, above it, switches for emergency lights. The twin dials in the middle are fuel contents gauges with switches for fuel flow cross-feeding, warning lights for underwing tank fuel levels etc. Behind this is the radio unit and the various communications switches associated with it. The switches to the far right are nav lights on/off, fire warnings, test switches etc.

This is the main undercarriage retraction jack. Note the red cover for the retraction jack with the RBF (Remove Before Flight) tag attached.

The port main undercarriage door, looking aft. Yet more plumbing. The ribs on the wheel well ceiling are very obvious as is the large locking pin for the main doors.

The nose wheel undercarriage legs tended to be whatever colour was used for the underside of the aircraft. You can see the simple attachment of the connecting rods to the undercarriage door and the generally clean lines of the leg (no hydraulics or anything being visible).

NEXT MONTH:
Messerschmitt Me 410

US Navy Camouflage Details, 1941-1947

Several incorrect or at least misleading things have recently appeared in print, in various places, concerning colours and camouflage schemes applied to US Navy aircraft during the war years. So it seemed a good idea to provide the following information.

This colour file shall concern itself with just those matters relating to the camouflage and low-visibility schemes of the years 1941 to 1947. The various markings, also colour schemes for trainers, target tugs etc., may be dealt with another time if need be. However the matter of markings seems not to be so problematic at the moment, quite possibly because many serious modelling folk these days are placing their reliance on the products of specialist decal makers, who are increasingly doing their homework properly.

But colour and colour scheme errors can still be a problem, with the potential for leaving the modeller with an inaccurate paint job unless he or she has some other reference to check with. The problem is that authoritative references to the subject of colours are pretty thin on the ground, and typically either expensive or long out of print. And so it seemed timely that Colour File should set out the basic information again, in an attempt to set the record straight.

Camouflage Schemes

Dates

The following notes show the dates from which the various painting instructions were to be effective. Instructions were frequently promulgated at an earlier date, to be effective from a stated date, thus giving some advance warning. Consequently it may happen that some dates shown here might not agree with those given somewhere else. A sincere attempt has been made to get the dates right but remember there would always be an implementation time-lag as well, so that aircraft were often to be seen wearing colour schemes rendered obsolete by a new directive issued perhaps several months previously.

Names of Colours

Proper names for colours did not usually indicate their surface finish. The reader may assume that all colours mentioned in the following chronology were "non-specular", i.e. a fine matt surface finish unless otherwise stated or indicated by a colours name.

Dec. 30 1940

Low Visibility Light Gray overall becomes the required finish for all ship-based

aircraft. Ship based types not actually on shipboard assignment, also to be low-visibility Light Gray overall.

Camouflage for Patrol aircraft (eg. PBVs). All Patrol aircraft to be painted Blue Gray on "all surfaces viewed from above", with Light Gray undersides.

Propeller blades to be Black or Insignia Blue both sides, but with the pre-camouflage three-colour warning bands (Insignia Red, Orange Yellow, Insignia Blue) at the tips.

Feb. 26 1941

Camouflage for all other floatplanes, flying

boats or amphibians (i.e. in addition to Patrol aircraft) not based aboard ships. All such types were now to have the camouflage scheme of Blue Gray and Light Gray. The form and location of the demarcation between upper and lower colours remained unspecified.

May 7 1941

Dividing line between upper and lower colours on PBVs should be the hull/float chine. (This meant, strictly speaking, that on the tail aft of the chine, the upper colour should wrap right around. Many were painted this way.)

Oct. 13 1941

All fleet and shore based aircraft to have camouflage scheme of Blue gray and Light Gray. (repainting of overall Light Gray aircraft normally consisted of simply spraying Blue Gray over their tops.)

The instructions required that a definite demarcation between upper and lower colours was to be avoided by use of a feathered, wavy line. (Photos indicate that this demarcation, although obviously sprayed, could be quite tight, with minimal feathering.)

Wings that folded up and over the fuselage for carrier stowage were to have Blue Gray on all exposed undersides.

Jan. 5 1943

The "Basic (Non Specular) Camouflage Scheme" is introduced. Embodying the principles of "counter shading", this was the elaborate three-colour scheme whose origins dated back to before Pearl Harbour. Three colours, but four different paints, the particulars of whose application are now being forgotten or confused by some.

The Colours...

Non Specular Sea Blue: upper surfaces of fuselage.

Semi-Gloss Sea Blue: upper surfaces of wings and tailplanes.

Intermediate Blue: vertical tail surfaces, also fuselage sides where Non-Specular Sea Blue and Insignia White are not blended directly into each other.

Insignia White: Undersides, except for the undersides of those portions of folding wings which are visible from above when folded.

...Their Basic Applications

- White leading edges. The leading edges of wings were to be "counter-shaded" by feathering Non-Specular Sea Blue into the Insignia White of the underside; the Non-Specular Sea Blue counter shading was to extend back on to the upper surface to approximately 5% of chord.
- Folding wings. The undersides of those portions of wings which fold up and over the fuselage to be Intermediate Blue.
- Fuselage sides. Two methods, A and B, were set out for blending the Non-Specular Sea Blue upper surfaces with the Insignia White undersides to achieve the desired "counter-shading" camouflage effect:-

A. Curved sides of small diameter fuselages were to have Non-Specular Sea Blue feathering gradually into Insignia White. This method was proposed as the favoured one for fighters, for instance, but photographic evidence shows us that, in practice, manufacturers soon favoured the use of method B, presumably as it was easier to control, producing a more consistent result.

B. The broader and flatter areas of larger diameter fuselage sides were to be Intermediate Blue, feathered into the Non-Specular Sea Blue at the top and feathered into Insignia White at the bottom.

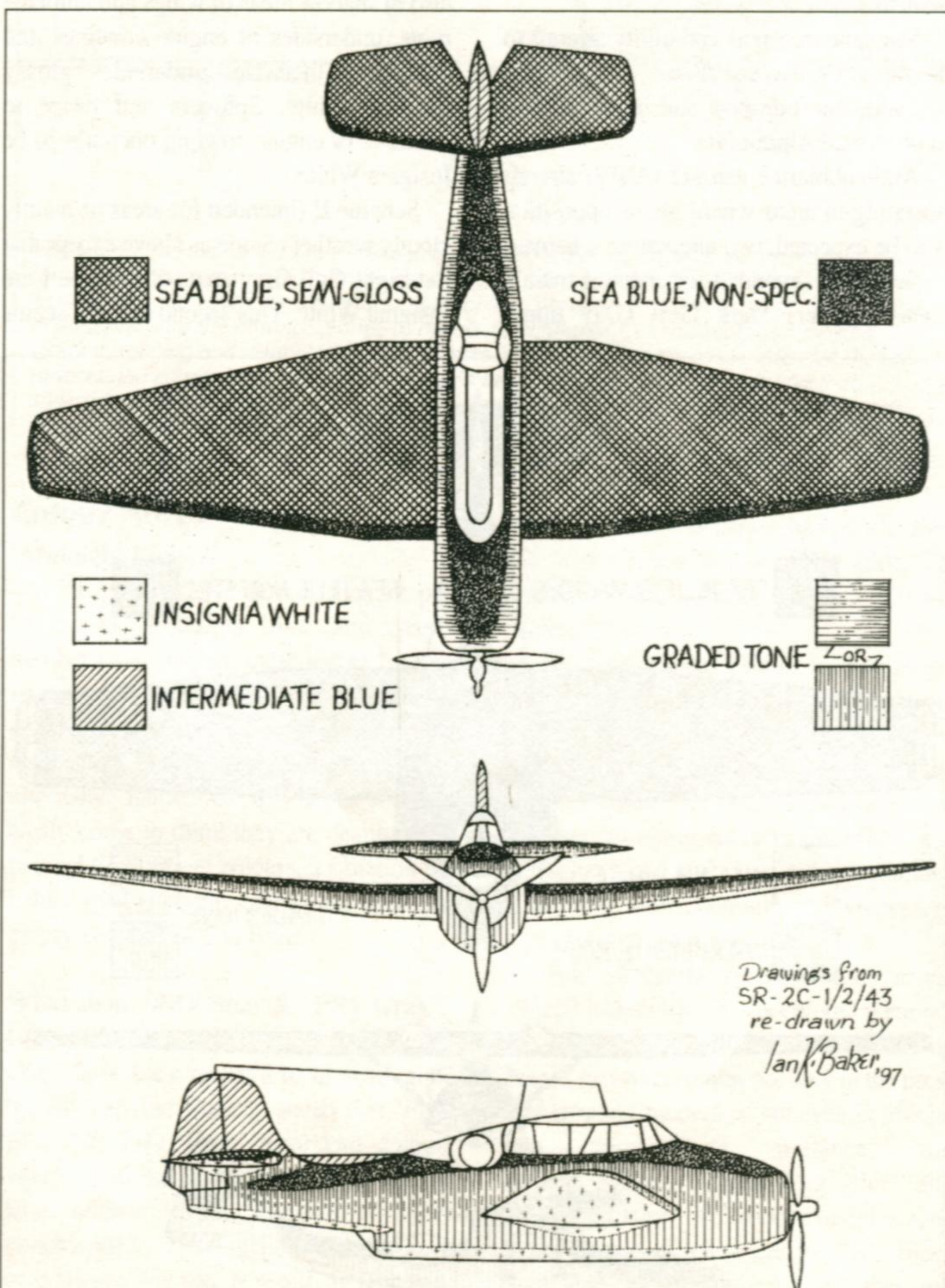
• Floats were normally to be Intermediate Blue on upper surfaces with Insignia White below the chine. However as the floats on PBV Catalinas turned on their sides as they retracted, these were Intermediate Blue below the chine, the upper parts being Non-Specular Sea Blue on the outer side and Insignia White on the inner.

• Struts. Float and wing struts would normally be Intermediate Blue.

• Propellers were now to be Black, and tips were now to have 5" (127mm) glossy Orange Yellow warning bands.

Hand Mixing The Colours

Because the Basic Camouflage Scheme was to be promptly implemented service-wide, initial problems with obtaining supplies of the new colours were anticipated in a directive of Jan.30, 1943 which set out colour mix recipes, whilst pointing out that these were necessarily approximate and that every time a small test batch of colour should be brushed out and compared with the colour standards



BASIC CAMOUFLAGE DESIGN - TBF

Re-drawn from a 1943 camouflage diagram, we see here the Basic Camouflage Design. It is important to note the use of both Semi-Gloss Sea Blue and Non-Specular Sea Blue in this scheme, something which sometimes seems to be getting forgotten nowadays. Some folk may be surprised to learn it was intended that all aircraft with curved sides should have spray painted "counter-shading" or "counter-shadowing" which graded from the dark Sea Blue of the top to the Insignia White of the underside. Intermediate Blue was intended only for fin/rudder sides. Careful scrutiny of photos will reveal some examples of this, but mostly manufacturers soon fell into the way of using Intermediate Blue to link the upper and lower colours, even on wing leading edges sometimes.

applying:

Non-Specular Sea Blue:

Blue Gray 6 parts

Insignia White 4 parts

Black 2 parts

OR

Dark Blue 4 parts

Insignia Blue 5 parts

Black 2 parts

Insignia White 1 part

To make the semi-gloss colour add

Clear Dope 3 parts

OR

Lacquer 1 part

Intermediate Blue:

Blue Gray 12 parts

Insignia White 24 parts

Dark Blue 2 parts

Insignia Blue 1 part

Insignia Red 1 part

March 5 1944

• Transport, utility and ambulance aircraft not in combat zones, both land-based and amphibious, may be overall Aluminium instead of the standard scheme.

• Interiors of engine cowlings of camouflaged aircraft to be (Non-specular) Black.

• Floats on camouflaged aircraft continue to be Intermediate Blue down to chine as before but, it is pointed out, any portions which project beyond wings or fuselage to be visible from above, are to be Non-Specular Sea Blue.

• Propeller spinners of camouflaged aircraft to be Intermediate Blue.

• Underside stains. A coat of clear gloss lacquer of approximately 2 feet (61cm) in diameter to be applied over any Insignia White areas which happen to be surrounding exhaust stacks and oil drains.

• Wing undersides. In the course of clarifying the already established requirement for painting the undersides of the folding portions of wings Intermediate Blue, it was pointed out that in the case of aircraft types that normally had folding wings, but whose wings were permanently fixed, the Insignia White underside colour might be applied to the whole wing underside area.

March 13 1944

Fighters to become Glossy Sea Blue overall, but use of Non-Specular Sea Blue was permitted where necessary to protect pilot from glare. F4U Corsairs for example commonly had the matt colour for nose decking, this is quite noticeable in photos of examples whose paintwork is becoming weather-worn as the anti-glare nose decking colour tended to fade faster.

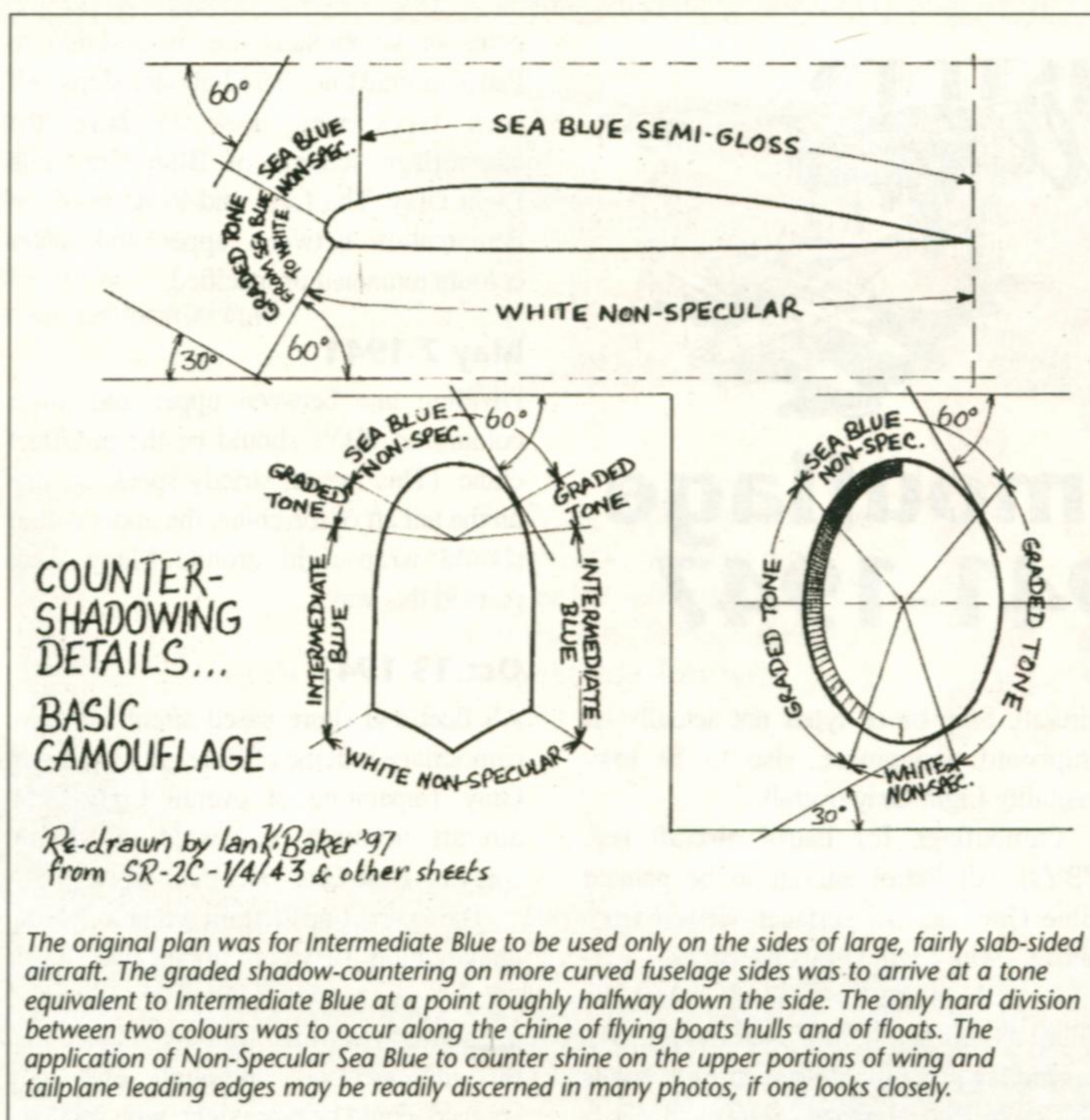
Basic Camouflage Scheme to become glossy. This directive, effective for only a few months (see Oct. 7 below) stated that the colours of the three-colour scheme were to be glossy. Photographic indications are that this slightly strange requirement affected only limited numbers of new aircraft and maybe some home-based types whose paintwork was being refurbished.

Mar. 24 1944

The colour hitherto known as Insignia Red now has its name changed to Bright Red.

Oct. 7 1944

This directive set out six different schemes,



The original plan was for Intermediate Blue to be used only on the sides of large, fairly slab-sided aircraft. The graded shadow-counteracting on more curved fuselage sides was to arrive at a tone equivalent to Intermediate Blue at a point roughly halfway down the side. The only hard division between two colours was to occur along the chine of flying boats hulls and of floats. The application of Non-Specular Sea Blue to counter shine on the upper portions of wing and tailplane leading edges may be readily discerned in many photos, if one looks closely.

which would now apply to various categories or missions:-

All carrier aircraft to be overall Glossy Sea Blue.

Seaplane transport and utility aircraft to be overall Glossy Sea Blue.

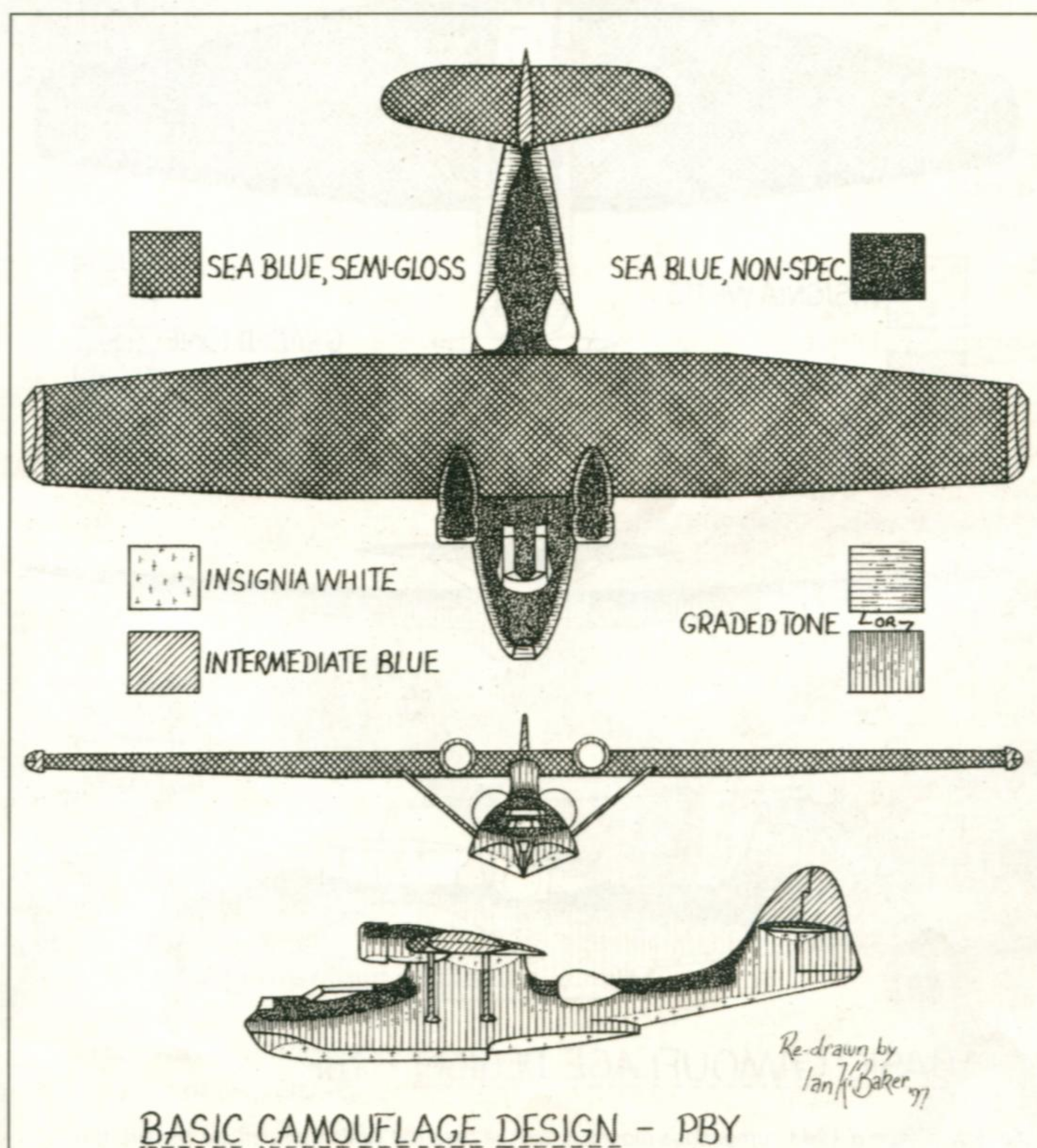
Landplane transport and utility aircraft to be overall Aluminium.

Anti-submarine warfare (ASW) aircraft operating in areas where no air opposition is to be expected, two alternative schemes:

Scheme I (intended for areas of mainly clear weather) Dark Gull Gray upper

surfaces; Light Gull Gray side surfaces with Insignia White on all leading edges of nose, engine cowlings, wings and tailplane, also in shadow areas of wings and tailplane roots, undersides of engine cowlings and nacelles; otherwise, undersides glossy Insignia White. Spinners and props to diameter of engine cowling openings to be Insignia White.

Scheme II (intended for areas of mainly cloudy weather) Same as above except that the Light Gull Gray areas of Scheme I are Insignia White. This second scheme seems



This re-drawn diagram shows the Oct. 1944 version of the Basic Camouflage Scheme. It has been claimed that certain photographic evidence shows that makers frequently disregarded the requirement for anti-shine Non-Specular Sea Blue along upper leading edges. But this ignores the fact that Oct. 1944 revisions to the Basic Camouflage Scheme not only reversed the previous March requirement for a glossy finish but also specified that the Semi-Gloss Sea Blue should now extend over wing and tailplane leading edges and on to undersides to approximately 5% of chord.

to have been the one generally applied in practice, presumably either because the assignment of aircraft to particular areas was not known at the time of production, or because having two schemes for different climatic areas did not allow for movement from one to the other.

All other patrol, patrol bombing and observation aircraft, including helicopters (and any other such aircraft not fitting into any of the above categories presumably) continue to have the 1943-style three-colour Basic Camouflage Scheme. This directive indicated that the Basic Camouflage Scheme should take its original 1943 form, with non-specular finish except for semi-gloss wing and tailplane upper surfaces. But there was a difference which should be noted: wing leading edges were now simply to be the semi-gloss of the upper surfaces, which was to extend on to the undersides approximately 5% of chord, feathering into the underside Insignia White.

Wings that folded up would continue to have Intermediate Blue on the undersides of the folding sections. But the painting of wings that folded along the fuselage outwardly showing only their topsides (e.g. TBMs) was clarified with the instruction that they were to have their undersides Insignia White.

Propellor tip warning stripes (glossy) Orange-Yellow. Two widths were now specified: 4" (101.6mm) for props of under 15' (4.5m) diameter. Larger props were to have 6" (152.4mm) bands.

Drop tanks were to be the same colour as the adjacent area of the aircraft. It has been observed that the Insignia White drop tanks slung under F6F Hellcats could soon take on a pinkish coloration from petrol staining.

Dec. 30 1944

A new colour scheme for landplane patrol and patrol bombing aircraft introduced: Semi-Gloss Sea Blue wings and tailplane (upper and lower) and Non-Specular Sea Blue fuselage, fin and rudder. This scheme is understandably rather difficult to spot in photos which may, as a consequence, be liable to misinterpretation. The specified scheme for patrol and patrol bombing sea planes and amphibians would continue to be the Basic Camouflage Scheme until the January 1947 changes.

Mar. 10 1945

Propellor bosses and spinners were now to be (non-specular) Black, except for aircraft wearing the ASW scheme, on which they would continue to be Insignia White.

There were no further changes until Jan. 2 1947 and they are essentially another story. Suffice to mention here that basically that was when all Navy aircraft, apart from Aluminium finish land based transport and utility aircraft, and special bright scheme for such types as trainers, target tugs, drones etc., were required to be Glossy Sea Blue overall with Non-Specular Sea Blue anti-glare surfaces where necessary.

Black Cats

December 1942, VP-12 PBVs at Guadalcanal are wearing a non-specular black overall finish, not even any national insignia, the only regular marking being

small white numbers on vertical tail surfaces for identification of individual aircraft.

VP-11, VP-52 & VP-101 of Fleet Air Wing 17 wear the same scheme for operations in the New Guinea area from Sept. 1943.

But from late 1944 into 1945 the all-black night flying Cats of VPB-50 operating in the Philippines area carried star-&-bar elements of the national insignia.

White Cats

From Sept. 13 1942, Patrol Wing 7 operating in the arctic northern Atlantic region were permitted to paint their aircraft overall glossy White.

Interiors

26 March 1942

Cockpits of service aircraft were to be finished in a dull dark green.

Flying boat interiors might be a colour chosen at the discretion of the manufacturers, subject to official approval, but personnel spaces were generally to be finished a semi-gloss pastel green or blue.

Cargo space and all structural spaces might be either Zinc Chromate Primer or the same as other interior spaces of the aircraft, at the discretion of the manufacturers. The colour tinting of zinc chromate primer at that time could vary from yellow to dark green.

Inside surfaces of dive brakes were to be Insignia Red.

Dec. 21 1942

Standard colour fixed for all Army and Navy aircraft cockpits (and presumably other crew spaces), this colour henceforth to be known as Cockpit Green, subsequently renamed Interior Green.

Oct. 10 1944

Instrument Black and Interior Green. Cockpit interior surfaces above the level of the bottom of the instrument panel to be Instrument Black, which had a semi-gloss finish. Surfaces below this line in the cockpit and all surfaces in other crew spaces to be Interior Green. Baggage compartment interiors, bomb bays and structural spaces on which more than one coat of Zinc Chromate primer was to be applied were to have subsequent coats tinted with black enamel plus some aluminium paste to a colour which was not set by any colour standard.

Fabric Covering: red oxide dope was applied to external fabric surfaces, to shrink and prime them. This did not soak through, so the interior sides of fabric coverings remained natural linen in colour.

Structural steel tubing: the final finish was glossy black, except in areas such as cockpits where they would be covered with the overall cockpit colour.

Dural tubes: finished in a grey-green colour.

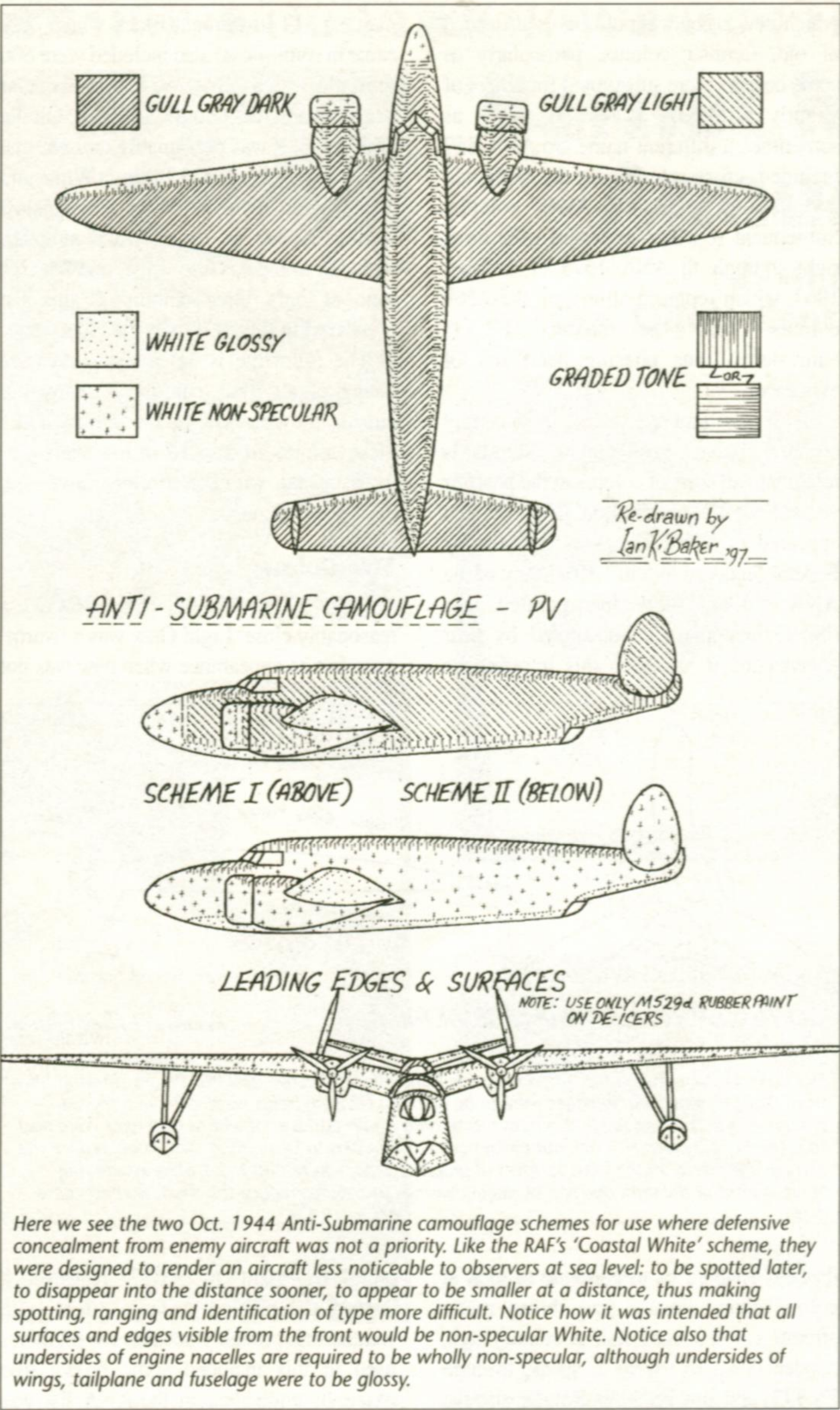
Plywood panelling: final finish was commonly grey-green or the same as adjacent details e.g. Instrument Black.

Stranded wire cables: natural metal.

Bracing wires: natural metal, or black, or grey-green.

Metal hydraulic pipes & electrical conduit: generally grey-green with specified ID colours at ends.

Electrical cables: rubber or plastic, generally semi-gloss black.



Colour Notes

'Midnight Blue'

Sea Blue was often referred to in the past by names 'midnight blue' and 'patrol bomber blue'. In fact, these names became so commonly used at one time that many people believed they were official. Not only that, but when you have two alternative names like this, some folk can easily come to think they are dealing with two subtly different colours, a situation not helped by there being matt, semi-gloss and glossy versions of Sea Blue.

What about 'PBY Blue' & 'PBY Gray'?

Colours called 'PBY Blue' and 'PBY Gray' have been referred to in years gone by. In 1985 Ian Huntley stated that 'PBY Blue' & 'PBY Gray' were two colours which appeared in early US Navy colour lists around 1939, apparently under consideration for possible future camouflage use. As a result of this they were put on the Canadian Department of Defence short list for production in Canada, for possible application to US-built aircraft in Canadian service and also in case Canada supplied aircraft to the US Navy. It would appear that the company, Thorp Hambrock, actually supplied quantities of these colours to the RCAF/RCN for interim camouflage pending arrival of details and specifications

for British Air Ministry schemes. He gives FS. colour matches as: PBY Blue, FS. 34058 and PBY Grey, 36440 "approximately".

However, John Elliott in his recent intensively researched four-volume work on the history of USN aircraft colours makes no mention of colours known by these names. All indications are that nothing regarding aircraft camouflage was settled in 1939, and experiments continued into 1940 with continuing differences of opinion as to what was best.

Until relatively recent times, correct official names for various colours were not always known, so incorrect and made-up names gained currency, not only in the press and amongst modellers, but even in official and semi-official parlance and documentation. 'Duck Egg Blue' and 'Midnight Blue' are good examples. One interpretation of references to 'PBY Blue' and 'PBY Gray' might be that they are actually referring to the Blue Gray and Light Gray seen on PBY aircraft in the first half of 1941 when no other navy types were wearing such a scheme, with the resulting conclusion on the part of some that this camouflage was unique to the type.

What about green camouflage?

And what of navy aircraft supposedly camouflaged with green or grey-green

upper surfaces and light grey undersides, at or around the start of the Pacific war? John M. Elliott remarked in his book that, over the years, there have been "numerous references to Navy aircraft being painted green". But his detailed researches did not turn up anything of an official nature to support this. Nevertheless, Elliott reminds us, it remains a fact that a Japanese intelligence message of August 1941 from the Philippines area included the following: "...I have heard that among the naval planes there are those which have been observed to be painted a light green...".

Owen Thetford, in his 1946 book "Camouflage of 1939-42 Aircraft" stated that in December 1941 "...aeroplanes of the U.S. Navy were mostly painted greyish-green on upper surfaces and were pale grey underneath". An accompanying colour illustration depicted an SBD wearing this scheme. We now know that, as stated, this was simply not the case. But what is the origin of such information? What prompted the belief? William T. Larkins, in his 1961 book "U.S. Navy Aircraft 1921-1941", shows an SBD-3 of Scouting Sqn. 3, captioned "...September 1941 with special light green camouflage...". In 1968, Gordon Swanborough's and Peter Bower's book "United States Navy Aircraft Since 1911" stated "A non-specular grey-green shade called sea green was adopted as side and top surface camouflage...By early 1942 it had become standard..." and gave a photo of VT-7's TBD-1s purportedly in this scheme. John M. Elliott, in his authoritative 1989 book shows the Larkins photo again, describing the aircraft as having "...Blue Green on top and sides...", confirming the date of the photo as Sept. 30, 1941, but providing no additional colour comment.

It is a fact that through 1940 a considerable number of camouflage tests were carried out, the resultant observations then becoming factors in settling upon a suitable scheme. Greens, Greys and blues were of course the obvious colours to test. A matt dark green for upper surfaces was one of the colours trialled, and favoured by some, but Elliott tells us that Patrol Squadron 11 are on record as reporting that they considered a "blue-gray" colour preferable to "green-gray" for the Pacific theatre, which surely implies that such a shade, of some sort, must have been trialled.

It can happen all too easily that an isolated observation or two, in this case of a navy aircraft, perhaps several, apparently wearing a new colour scheme, might lead an observer to draw conclusions which are expanded into a generalisation along the lines of "Here is the navy's new colour scheme". The original observations were not mistaken, but the resulting generalisation was simply not true. This seems the likely explanation for the 'mystery' grey-green camouflage.

There was also a time, quite some years back, when a suggestion that some Marines F4U Corsairs had been camouflaged with greens instead of blues, was doing the rounds. Now written off as just one more error, it was a tantalising thought at the time. The trouble is, some folks' colour memories can prove to be almost unbelievably unreliable with the passage of the years.

Light Gray and Blue Gray

These 'M' specification colours were from

the USN Bureau of Ships range of camouflage colours, adopted by the Bureau of Aeronautics as an expedient means of obtaining for immediate use a couple of known colours.

Later, when the ANA colours list was constructed, Light Gray M-495 was brought into it as ANA 602 Light Gray, and then later when Federal Standard 595 was created, the stated equivalent to ANA 602 became colour number 36440 although this was a little lighter and cooler than 602 had been.

The actual colour of Blue Gray M-485 was not taken into the ANA list. The official equivalent was stated to be Sea Gray 603, and this was the grey which subsequently became number 36118 in FS.595. As a consequence, there has long been a widespread assumption that Blue Gray looked like 36118, which is simply not the case.

Blue Gray and Intermediate Blue Confusions

There appears to have been confusion of Blue Gray with Intermediate Blue in the minds of some people, possibly stemming from an ill-founded belief that they were one and the same colour. Sources viewed as very authoritative have referred to the 1941-42 two-colour scheme as being Intermediate Blue with Light Gray undersides. This is incorrect. Let us be quite clear on this point: the two-colour scheme used Blue Gray over Light Gray. The subsequent three-colour scheme introduced Intermediate Blue.

That said it is quite plausible that where the new three-colour scheme was being applied to aircraft already wearing the two-colour scheme, the old Blue Gray may have been left to substitute for Intermediate Blue, the repaint just adding the darker Sea Blue to top surfaces. In fact, it has been suggested that this did happen in some instances. But that is quite another matter. Despite their superficial similarity, Blue Gray and Intermediate Blue were not one and the same. All indications are that by comparison with Intermediate Blue, the earlier Blue Gray was a little darker and the colour in it a little stronger and a little more of a greenish blue.

'ANA' Colours: What does this mean, and what are they?

Prompted by circumstances following the outbreak of war in Europe, a Joint Aircraft Committee was established, on which not only the US Army and Navy air forces were represented, but Britain also. A Technical Subcommittee on Camouflage of the J.A.C. worked to produce a single, rationalised list of colours for paint manufacture and application to all aircraft being built in US factories. They studied all the colours currently required by the Army Air Forces, the US Navy's Bureau of Aeronautics, and the British Ministry of Aircraft Production, and settled upon 19 colours for a new standard. The first issue of Army-Navy Aeronautical Bulletin 157 (ANA 157) entitled "Colors, List of Standard Aircraft Camouflage" appeared in September of 1943. A companion bulletin, ANA 166 was compiled to list glossy aircraft colours.

Naturally, such a rationalisation list was going to cause some confusions about

which new colours should be used instead of old, familiar colours, particularly as some colours were substituted for others of slightly different shade as well as sometimes a different name. So ANA 157 included cross-referencing to both old colours and to British MAP colours. Subsequent re-issues appeared over time, right through to ANA 157e of October 1964, which replaced almost all the ANA colours with the nearest FS.595 equivalents, thus phasing itself out of existence.

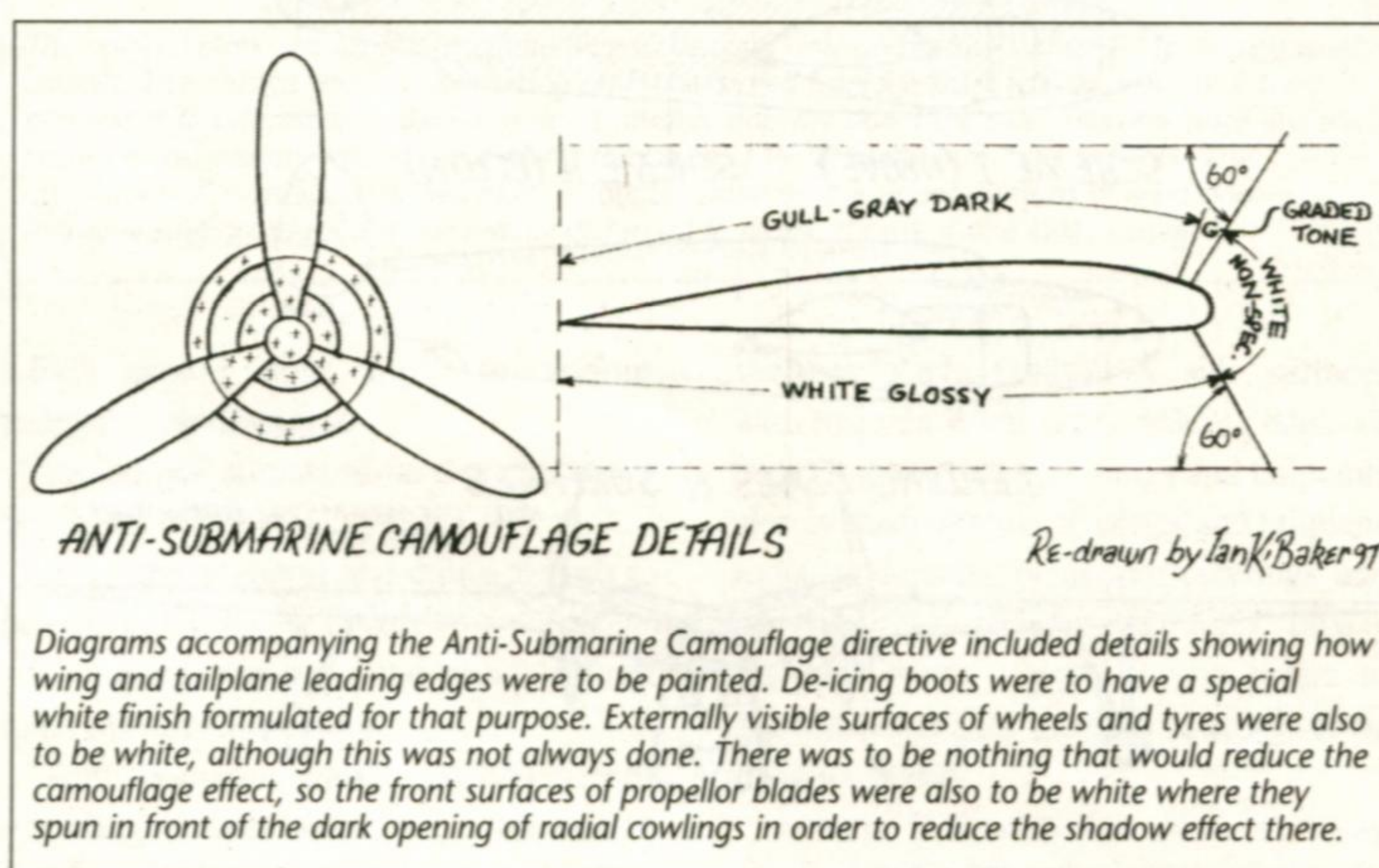
With the emergence of increasingly comprehensive government standards relating to all sorts of colours in the postwar years, Federal Specification TT-C-595 had appeared in 1950. This was replaced by Federal Standard 595 in 1956. Many of the ANA colours were incorporated into FS.595, or officially substituted by near equivalents. It has been this transference

matt, or 514 Instrument Black which only came in semi-gloss) also included were 606 semi-gloss Sea Blue, 607 Non-Specular Sea Blue and 623 Glossy Sea Blue. On the other hand, it was presumably thought that the surface finish of 511 Insignia White and 601 Insignia White could be distinguished readily enough by the fact that although included in the ANA 157 list, number 511 (one of only three colours in this list numbered in the 500s) was the glossy one.

The following is not a comprehensive listing of all ANA colours as many fall outside the concerns of this article. Only those colours mentioned in the main text, or associated with the schemes discussed, have been included.

The Colour

• Light Gray M-495: FS. 36357 is reasonably close. Light Gray was a 'warm' grey, but its appearance when new was not



that has enabled us to continue to look at colour chips closely resembling many aircraft colours used half a century ago, handed down to us, so to speak, through FS.595a and now FS.595b. But it is also the 'near equivalents' aspect of this handing down that has led to some colour confusions.

Terminology: 'Non-Specular'

'Non-specular' was the term officially used in reference to camouflage finishes providing a non-reflective or matt surface. It was a fine non-reflective surface, not a coarse one, but unless official terminology is being quoted the more common and better understood 'matt' might as well be used.

In the past, some writers have tended to over-use the expression 'non-specular', perhaps in an effort to appear technically correct. The fact is that most of the official colour names did not include the words 'non-specular', 'semi-gloss' or 'glossy'. As ANA 157 was a listing of predominantly non-specular colourways anyway, this was hardly necessary. The ANA 166 list contained most of the colours with a gloss finish.

However, as ANA 157 contained aircraft camouflage colours, and as navy schemes included semi-gloss and then later, glossy, finishes there had to be some seeming anomalies. And so although the official names of other colours in the list give no indication of their surface finish because they only came in one, usually matt, anyway (e.g. number 613 Olive Drab, 609 Azure Blue, 608 Intermediate Blue, all

quite so 'warm' as 36357. However it tended to develop a fawn tinge with weathering, probably because the pigments used in this included some brown iron oxide. Its equivalent in the ANA list was 602 Light Gray, which was decidedly lighter in tonal value and virtually the same as 620 Light Gull Gray; they were both superseded by FS.36440.

• Blue Gray M-485: FS.35189 is reasonably close. Elliott's researches indicate that Blue Gray was probably typically very much like 35189 for colour, but a little darker in tonal value, when new. However, it should be remembered that visual evidence of photos shows that Blue Gray was characteristically prone to fading and chalking.

• ANA 608 Intermediate Blue: FS.35164 very close. 608 was a fraction lighter in tonal value, and a little bluer in appearance.

• ANA 606 Semi-gloss Sea Blue: FS. 25042 very close. 606 was a fraction lighter in tonal value, and a little bluer in appearance.

• ANA 607 Non-specular Sea Blue: FS. 35042 very close. 607 looked bluer and because of the matt surface, appears darker than the semi-gloss Sea Blue in some photos and lighter in others, depending upon the angle of the light. But more subject to fading than semi-gloss Sea Blue, anyway.

• ANA 623 Glossy Sea Blue: FS.15042 very close. 623 was a fraction lighter in tonal value.

• ANA 601 Insignia White: FS.37875 is near 601 was not a 'snow' white, it looked definitely darker and a bit 'creamier' than

37875. In service this colour grimed and stained badly, leading to the belief held by some that it was in fact an off-white to start with; apparently sometimes known as "dirty white". ANA 511 (glossy) Insignia White, FS.17875, was not subject to anything like the same degree of discolouration.

• ANA 619 Insignia Red and ANA 619 Bright Red: FS.31136 very close. Was renamed Bright Red when a dull red similar to the British colour was added to the ANA list as 618 Dull Red, a colour little used on USN aircraft.

• ANA 605 Insignia Blue & 502 Insignia Blue: FS.35044 very close. 605 was subject to fading. 502, the glossy Insignia Blue not only resisted fading but often has the appearance, in photos of being darker due to its gloss.

• ANA 620 Light Gull Gray: FS.36440 good match.

• ANA 621 Dark Gull Gray: FS.36231 good match.

• ANA 506 Orange Yellow (glossy) & 614 Orange Yellow: FS.13538/33538 was slightly lighter and brighter than 614/506 had been. imagine the effect of a tiny bit of 13434/33434 added to 13538/33538.

• Zinc Chromate primer: Typically around FS.33481. Darkened to an Olive Green colour for cockpit areas. The precise colour varying from one maker to the next until ANA 611.

• ANA 611 Interior Green: FS.34151. This was the colour standard adopted which replaced the varying shades mentioned above.

• ANA 513 Engine Gray: FS.16081. Often (but not always) the colour used on crank-cases, reduction gear housings, etc.

• ANA 514 Instrument Black: FS.27038 is a good match, notice this is a semi-gloss colour.

Dan K. Baker

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- Ian Huntley articles in Scale Aircraft Modelling Vol. 8 No. 3, Vol. 8 No. 6, Vol. 11 No. 2, Vol. 13 No. 7.
- Bill C. Kilgrain, "Colour Schemes and Markings U.S. Navy Aircraft", Kilgrain, 3rd Revised 1983, ISBN 0-9691015-0-3.
- David H. Klaus, "IPMS Color Cross-Reference Guide", Klaus 1988(1st Ed.), Assembles & tabulates colour identity & appearance information, cross-referenced to nearest FS.595a equivalents, from a range of published sources including all of those listed on this page which were published at the time of its preparation; reprints the contents of TT-C-595 of Jan. 1950 cross-referencing it to the first FS.595; cross references FS.595a colours to various brands of hobby colours with the proviso "caveat sculptor" as the author has not personally checked them all.
- M&M Models, "Military Aircraft Colour Guide", M&M Models (Undated c. 1990). Includes page of 12 pasted in USN colour chips which appear to be based on the FS.595 equivalents of superseded ANA 157 colours, some of which are therefore at variance with the Elliott colours.
- Ross Whistler, "USAAF Camouflage 1933-1969", Whistler 1969. Useful tabulation of ANA colours and related information.



"We value your comments, corrections and suggestions for possible inclusion in future editions."

This was another one of those kits that once I had spotted it, I had to have it and after a ferocious three hour struggle with the Editor, he agreed to let me build it. So I honoured my part of the deal and let him out of the stationery cupboard.

The Kit

Although the review sample of this kit arrived some time ago it is only recently that they have been imported into this country and can be purchased from Swan Model Engineering.

This is a superbly presented kit with a sturdy, glossy printed box. The box art is among the best I've seen and the instructions are well drafted and clear. The kit parts are all resin though there is a choice of canopy, either a clear vac-form one or a resin frame with PVC transparencies to cut out. This seemed a little bit like hard work so I went for the vac-formed canopy. The resin is beautifully cast and soft enough for scalpel blades to just glide through. The detail of the parts is just astounding. Just about everything is in the cockpit, in perfect detail, as is all the framework, pipes and plumbing in the wheel wells.

Accuracy

When I offered up the parts to drawings everything was just about spot on, though if there was one area of concern it was the length of the cowl which is very slightly too long. But you know me, I wasn't going to let a piffling little thing like that ruin it. On reflection, and in my opinion, it is the front ring of the cowl that is too deep and easily reduced by a little sanding.

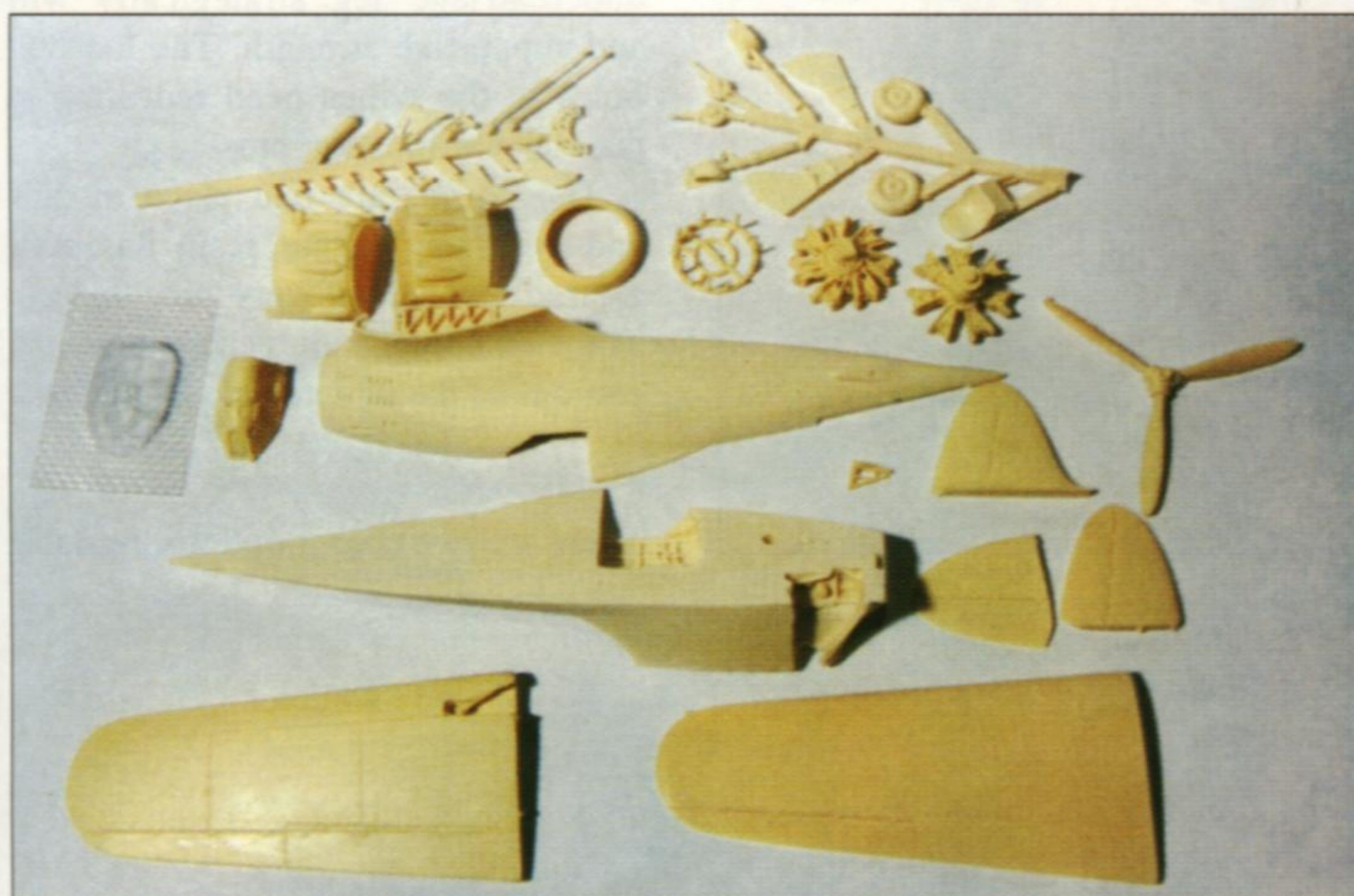
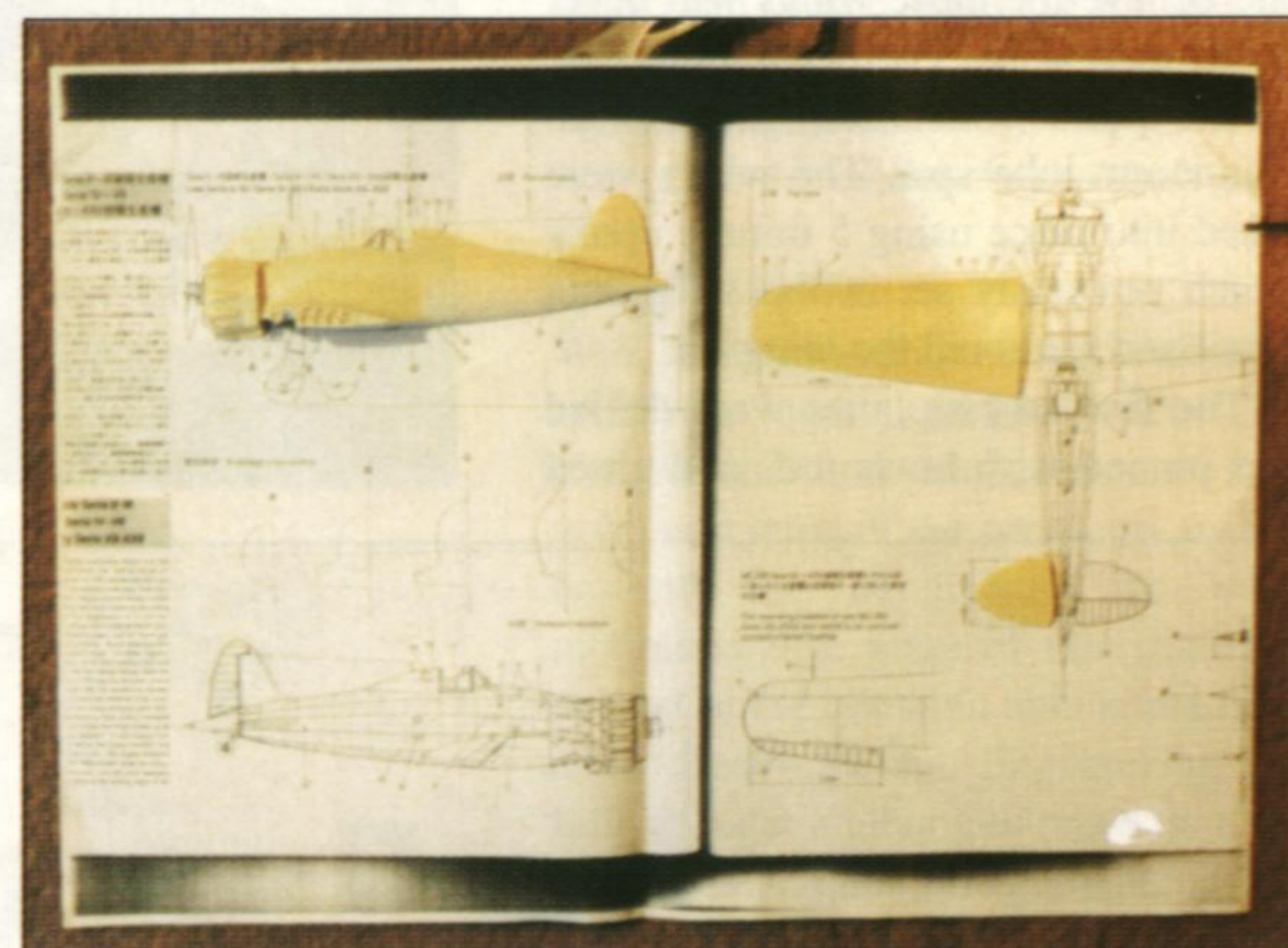
Construction

First job was to paint that cockpit interior and that was an evening's work. I used a base of cockpit green

QUICK BUILD



Macchi C.200 Saetta Fighter Bomber



it's not that bad. The fuselage is located by two separate pins, which don't line up, so bin them and use your eyes and judgement. You will also find that one fuselage half is slightly longer than the other. This discrepancy is in the front and can easily be dealt with.

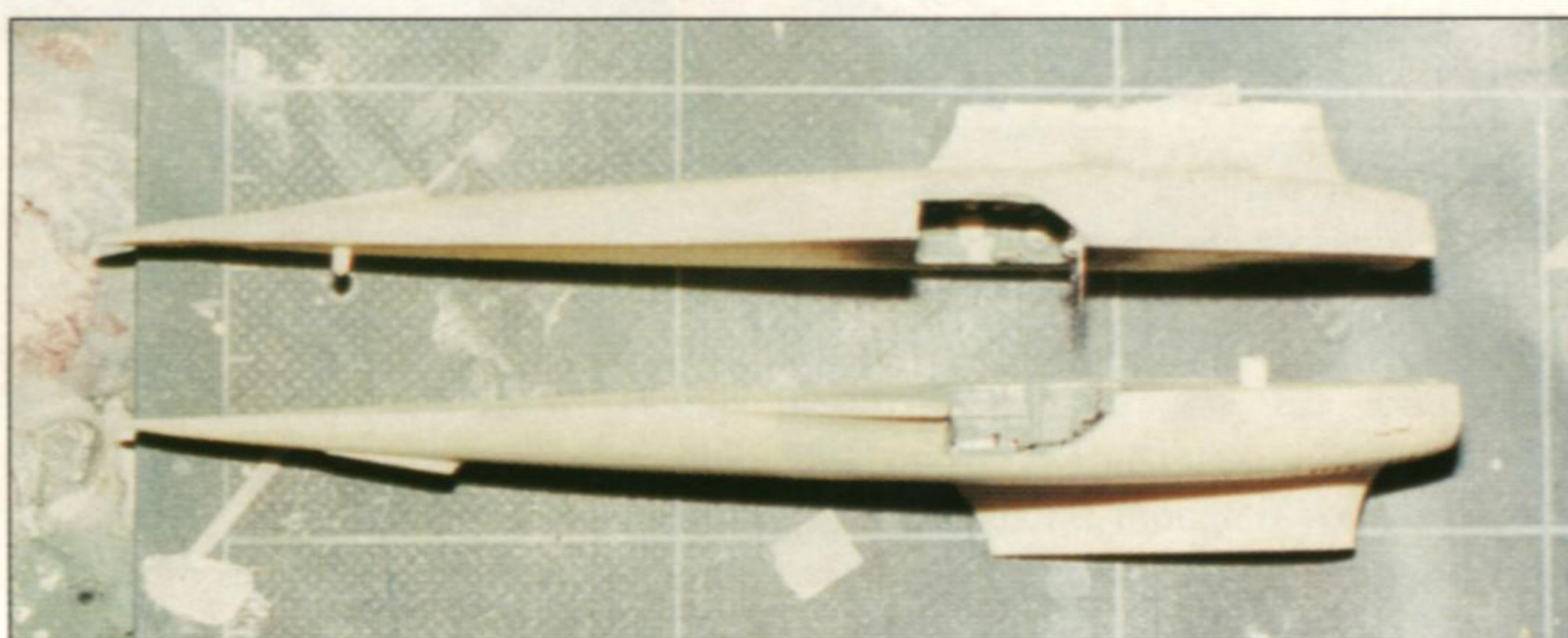
So, minus the location pins, I taped the halves together and put the nose into my bench vice. Using Cyano-

acrylate I flooded the joint (sparingly as you don't want to flood the cockpit with superglue) and then used clothes pegs to hold the whole thing tightly together. Once joined a little filler was needed to finish off this joint. A nice little addition to this kit was a thin resin panel insert into the pilot's headrest area which masks out the join line in the rear fuselage and finishes the job nicely.

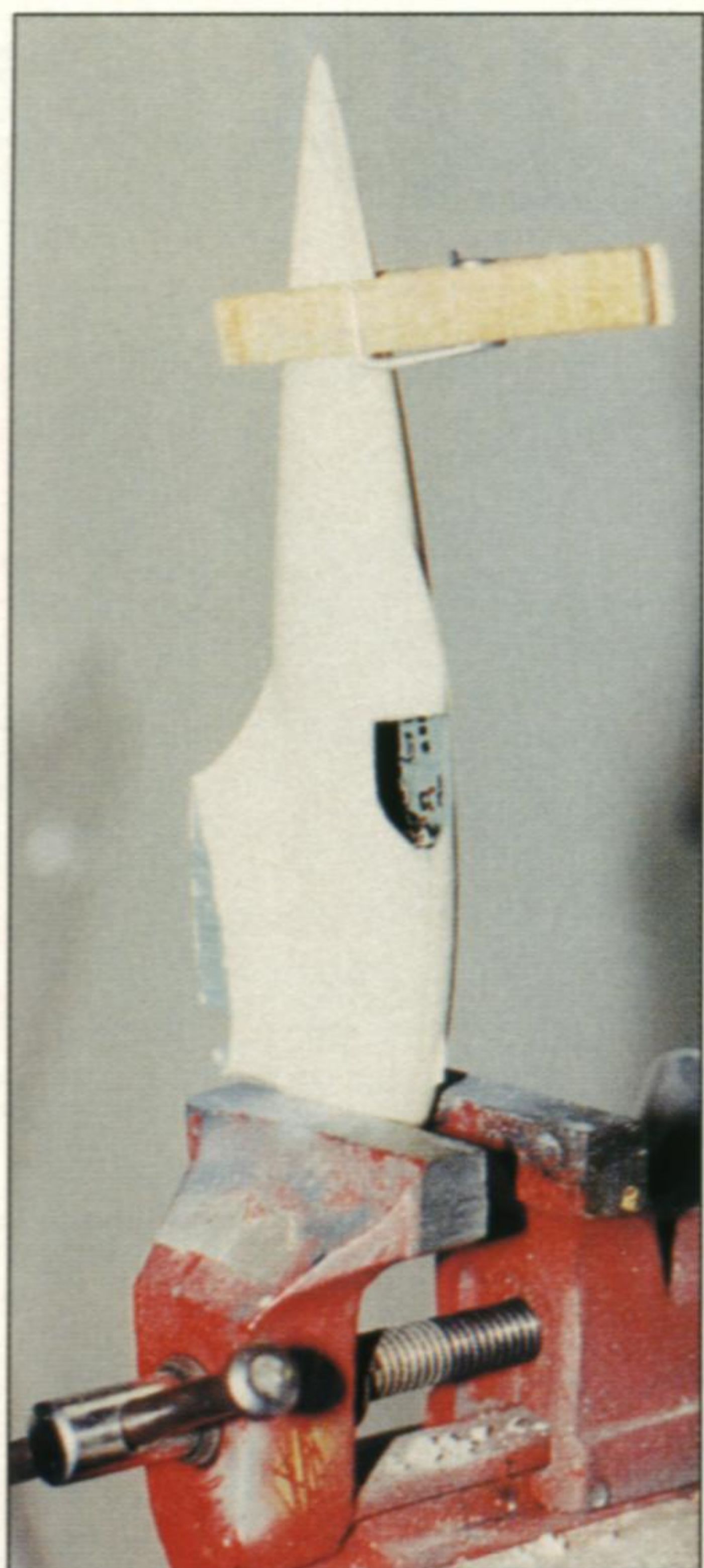


which was then brushed with a black wash to pick out the detail. Once dry I then set about it with a dry brush of aluminium. The only addition that was needed was the seat harness which was in fact from the Reheat RAF set. Close enough, if you don't tell anyone then I won't.

When I came to join the fuselage halves together I experienced the first problem with this kit, but don't worry



Now when it came to the wings I found a puzzling piece of detail in the shape of some beautifully moulded wing root interior detail. Great if you're going to do a 'workshop strip down' diorama but completely lost when you attach the wings. In the event of doing a diorama you would then have to put the detail into the wings themselves as there is none. A curious area of the kit that only the manufacturers can really



The engine comes in three resin parts. The Fiat radial is split into two rows of cylinders and a separate collector ring. Again the detail is superb though it is a little rough and you may wish to spend extra time



cleaning up. But nothing fits! You will, as I did, have to shave 0.5 mm off each cylinder to allow the cowls to close around the radial engine. The collector ring also poses problems in that, if you have it in place on the engine it won't fit properly onto the fuselage, so I did not include it on the model. With the gills closed you can't really see it anyway!



The canopy proved a bit of a handful as well, though to its credit (the kit's that is) you are given a choice of two styles of canopy, the completely open version or the side panel version which I opted for because of the lovely colour scheme that goes with it. Not only two styles but two ways of doing it which I thought was a brilliant idea. Version one was the vac-form which I went for and can recommend that you display it with the side panels open because the fit is not great, and you lose a lot of that grand interior. Version two is the cast resin canopy frame which needs the perspex panels cutting out and acetate clear panels

explain. In the end this detail proved useful in anchoring the wings in place and believe me those wings will never come apart again. I drilled a 2mm hole in all parts concerned to take an aluminium tube spar. The wings were glued into place using 5 minute epoxy which obviously set in the wing root detail and anchored the wing on.

The fin and tailplanes were drilled and pinned with brass rod, and glued



inserting. Nice idea, but too much like hard work for me.

Like the rest of the kit the undercarriage is all resin which worried me a little as it is rather weak. If you're clever like me though, then the undercarriage doors, if glued to the undercarriage leg strategically will add supportive strength. The location holes in the wings need redrilling to take the leg location pins.

The bombs are one piece moulds and once any excess resin has been cleared away look very nice indeed. The bomb racks fit perfectly to the contour of the underside of the wings.

Painting

There are two colour options available

with Superglue Gel. The fin wasn't a flush fit and a fair amount of filler was required to fill the gaps.

The engine and cowlings were going to prove to be an area where I struggled with this model, but struggle I did and won! The two cowl halves had casting blanks still in place which needed removing. Take care, they are very thin and delicate. This was an absolute cow of a job and had me sweating all the way through. I drilled with a 0.5 mm drill bit all the way along the circumference of the cowls (both ends) and then carefully and gently cut through to join each hole. Once cut out I then got to work on the cowls with needle files.



Of course, as the saying goes, if all else fails, read the instructions, which I did. OK Aeromaster Light Grey (acrylic) was applied to the undersides. The undersides of the wings were masked off, but remember that those fashion style crazed Italians took the base upper surface colour down over the undersides of the fuselage so only the wings and tail planes are light grey. Now this I did manage to get right the first time. The base upper surface colour used was Aeromaster Italian

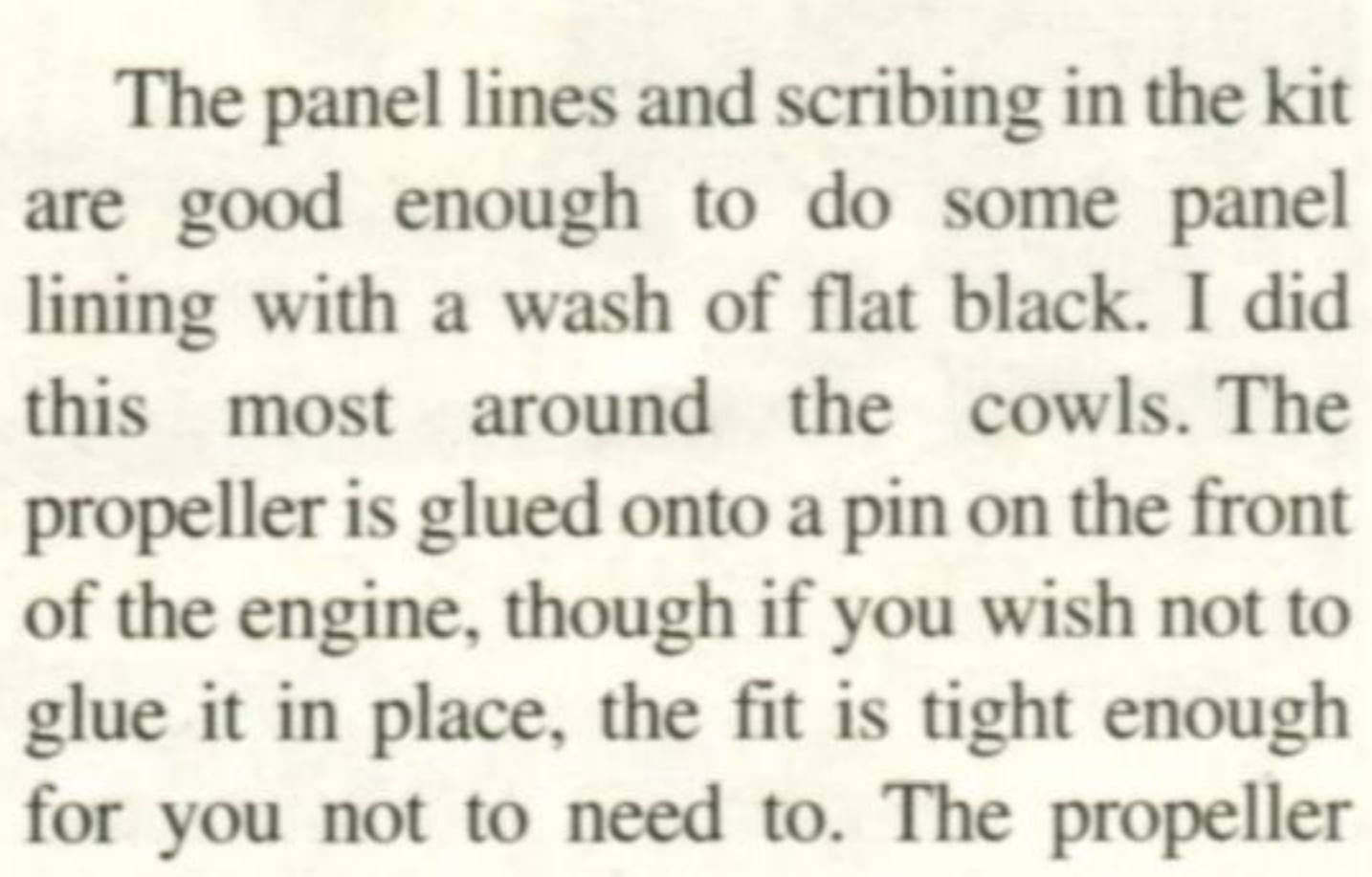


silvering. What a pretty machine, and it was finished on a high note.

Finishing

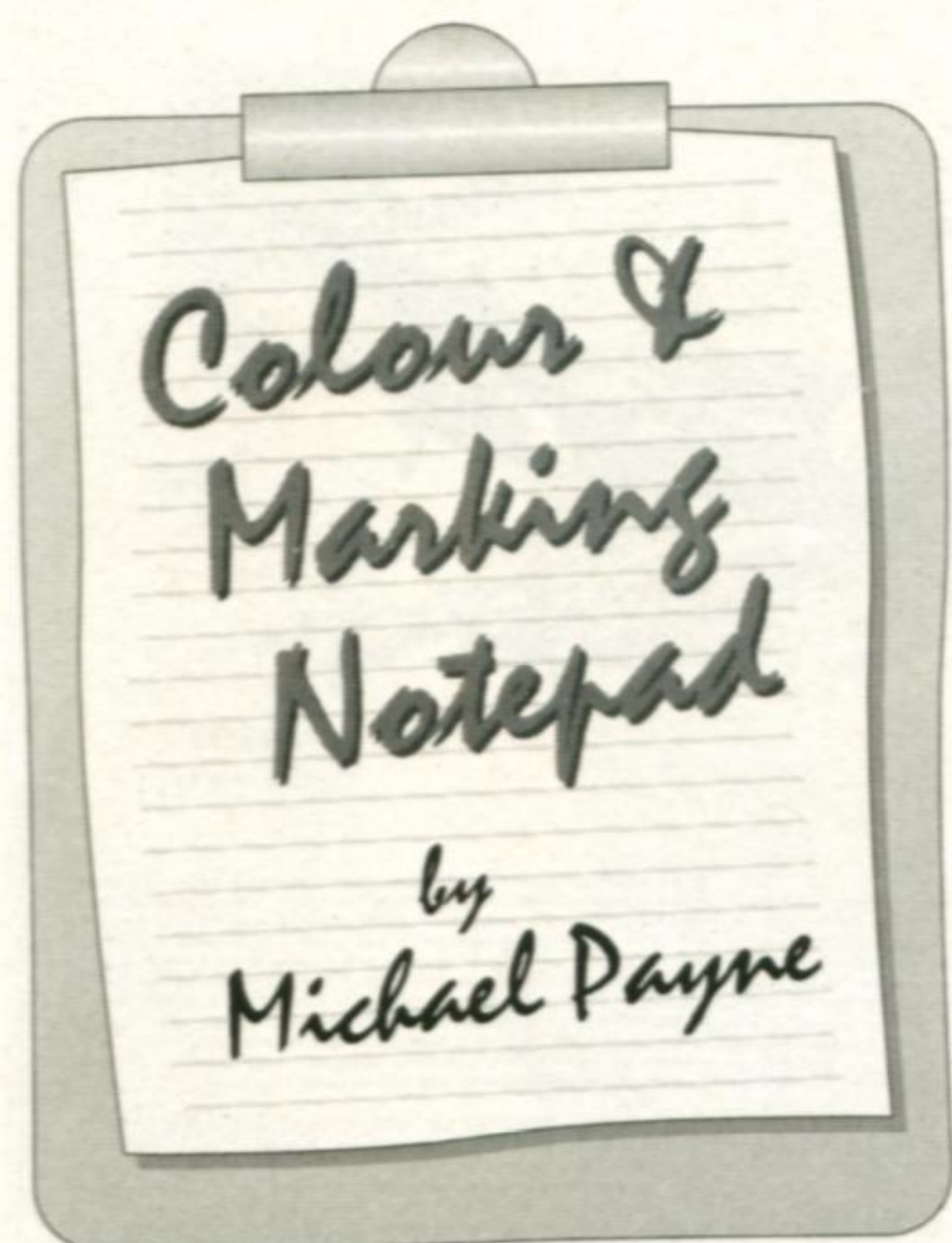
The cowls had been painted yellow of course but the front ring was a mucky copper colour which was mixed out of aluminium, a little red and brown and was brushed on by hand.

Richard



Hazel Tan which, as I have said many times before, is brilliant (if a little toxic) and should be available from your favourite model shop.

The dark red brown mottle was Tamiya Flat Earth (XF-52) jazzed up with 10% red thinned out with Tamiya thinners and sprayed on with a fine



without damaging the fabric covering. At this period (1939) L2277 was probably embarked on one of the flush-deck County Class cruisers. No under-wing serials were carried on account of the various racks for dropping things.

Photo 3

This Walrus, of United Whalers Ltd., G-AHFM (ex W3070) was a visitor at Roborough, Plymouth on 20 July 1946. It makes a very striking model with its chrome yellow hull, tail and upper flying surfaces and silver undersides, struts, nacelle and planing bottom. All lettering was black; the propeller dark grey. The name 'Moby Dick' was on the

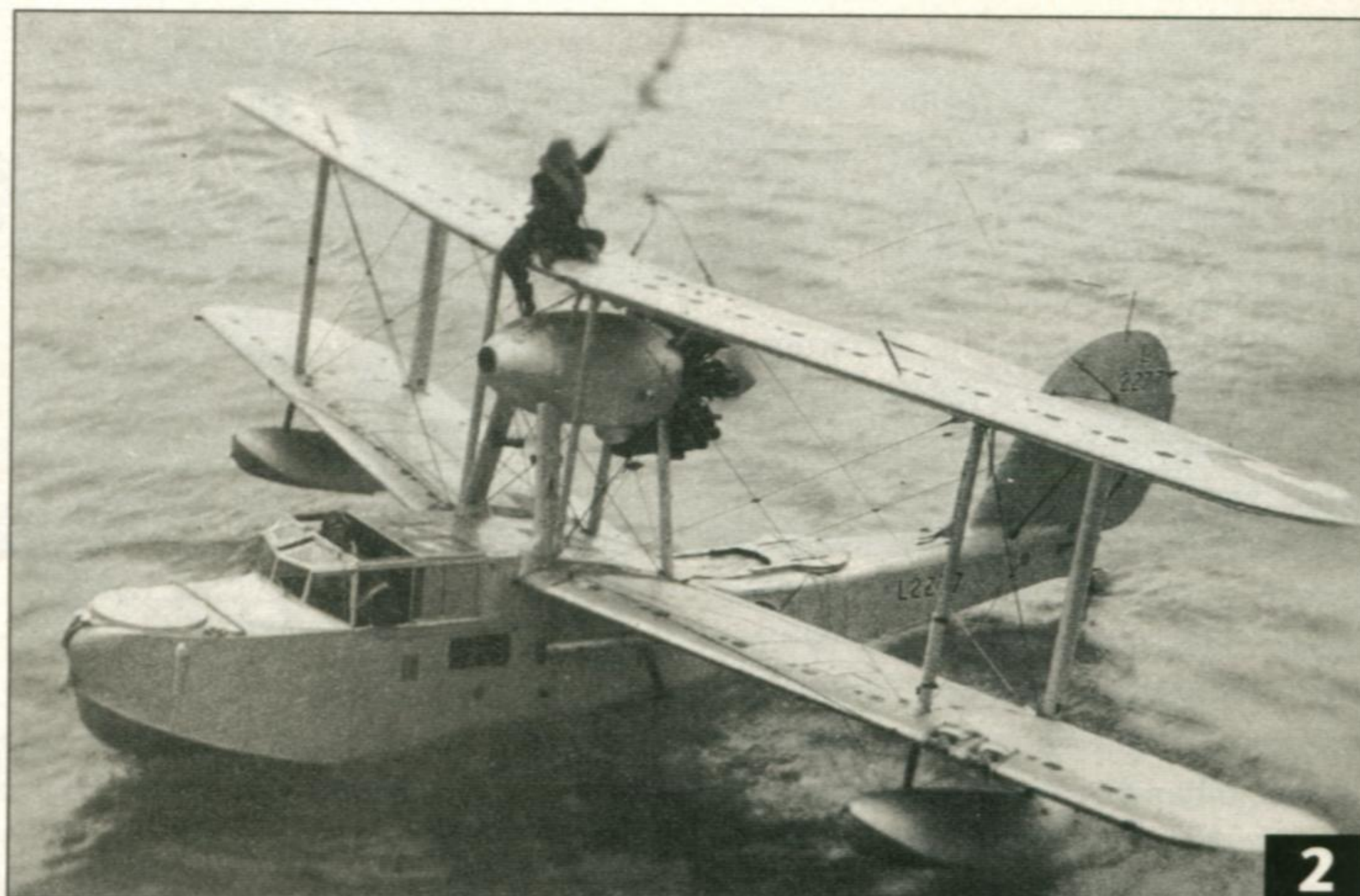
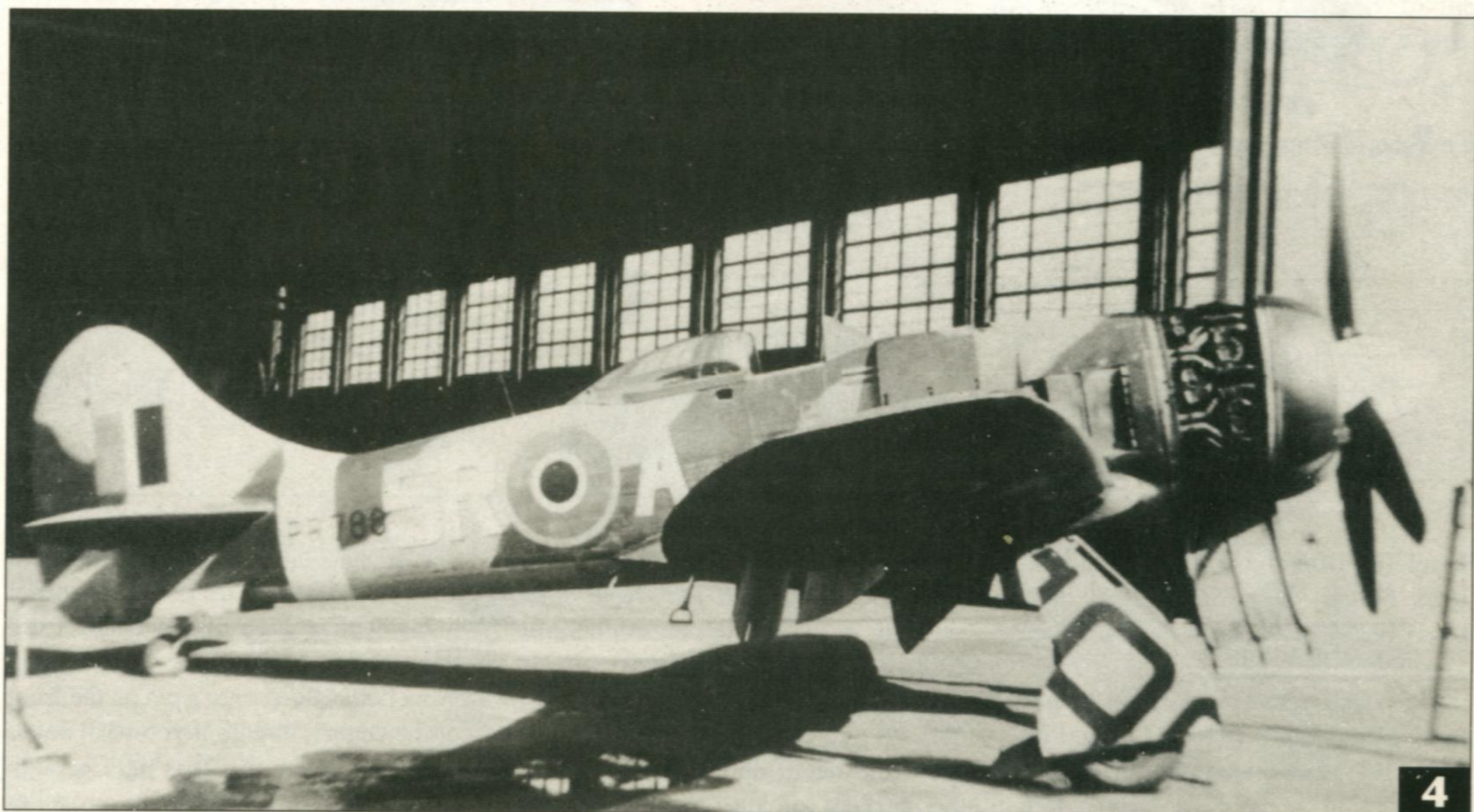


Photo 1

A pair of Hawker Harts of No.57(b) Sqn. up from Upper Heyford in the mid-1930s. Like most units, the squadron had at one time displayed its side number in Flight colours, but those on K2466 and 3032 seem to have been black with a white outline. Both fins appear to be coloured - probably yellow. Despite the numerous directives and rules about markings, both these Harts have retained their full-chord wing roundels while their rudder stripes have been removed. It is thus difficult to date the photo. The dark blobs on the centre section were hand holds for use by the pilot.

Photo 2

An action photo of Walrus L2277 about to be hoisted aboard a warship of the Royal Navy before the war. The observer is perched precariously on the top wing, attaching the hook to the lifting strop while the big four bladed propeller thrashes around beyond the wing. The engine nacelle had several degrees of port side thrust. This early aircraft, built at Woolston by Supermarine, had a metal hull painted with Cerrux anodic grey; the rest of the aircraft was silver with roundels in six normal positions. Fuselage roundels had narrow white outlines. A serial appeared on the rudder, high up above the upper hinge. The lines of black marks along each wing were 'footprints' showing where to walk



bows. The white building on the left is the George Hotel, an evening refuge for weary gliding school pupils!

Photo 4

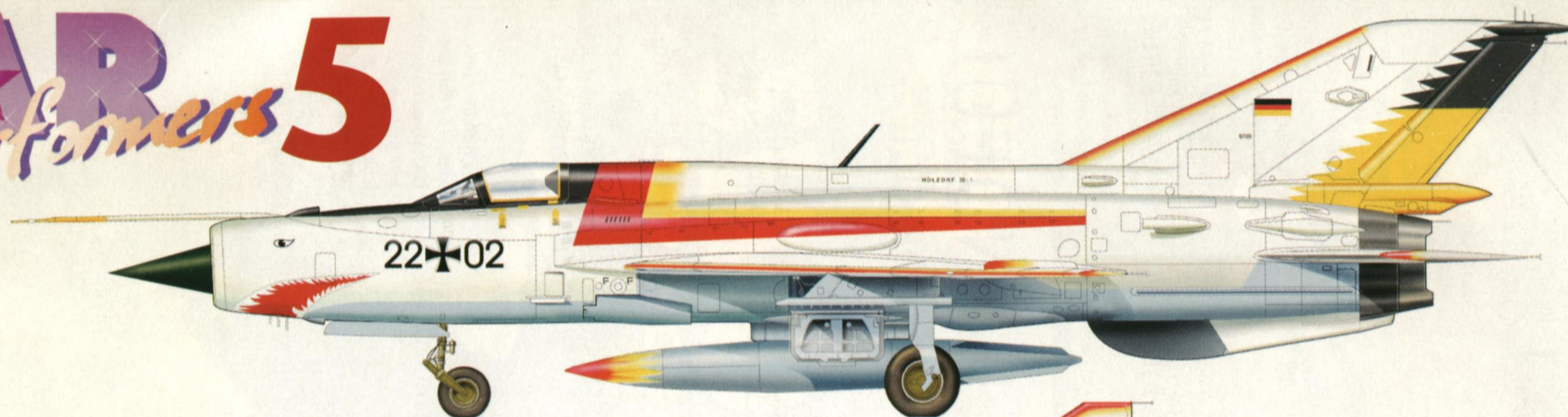
Hawker Tempest II in the immediate post-war period when large under-wing serials were added to the standard wartime finish. 5R-A, PR788 of No. 33 Sqn. was based in Germany but some aircraft returned to UK perhaps on an Armament Detachment where this machine was seen at Thorney Island. The earliest Tempest IIs that had equipped No. 54 Sqn. at Chilbolton (formed from No. 183 under Frank Jensen) had carried white cowlings and tail bands, but these were discontinued in Europe after VE Day. Despite the fierce power of the Centaurus the Tempest used a 4-bladed propeller (in those days an 'airscrew'). The type remained with the squadron until 1951. (A.Fraser)

Michael Payne

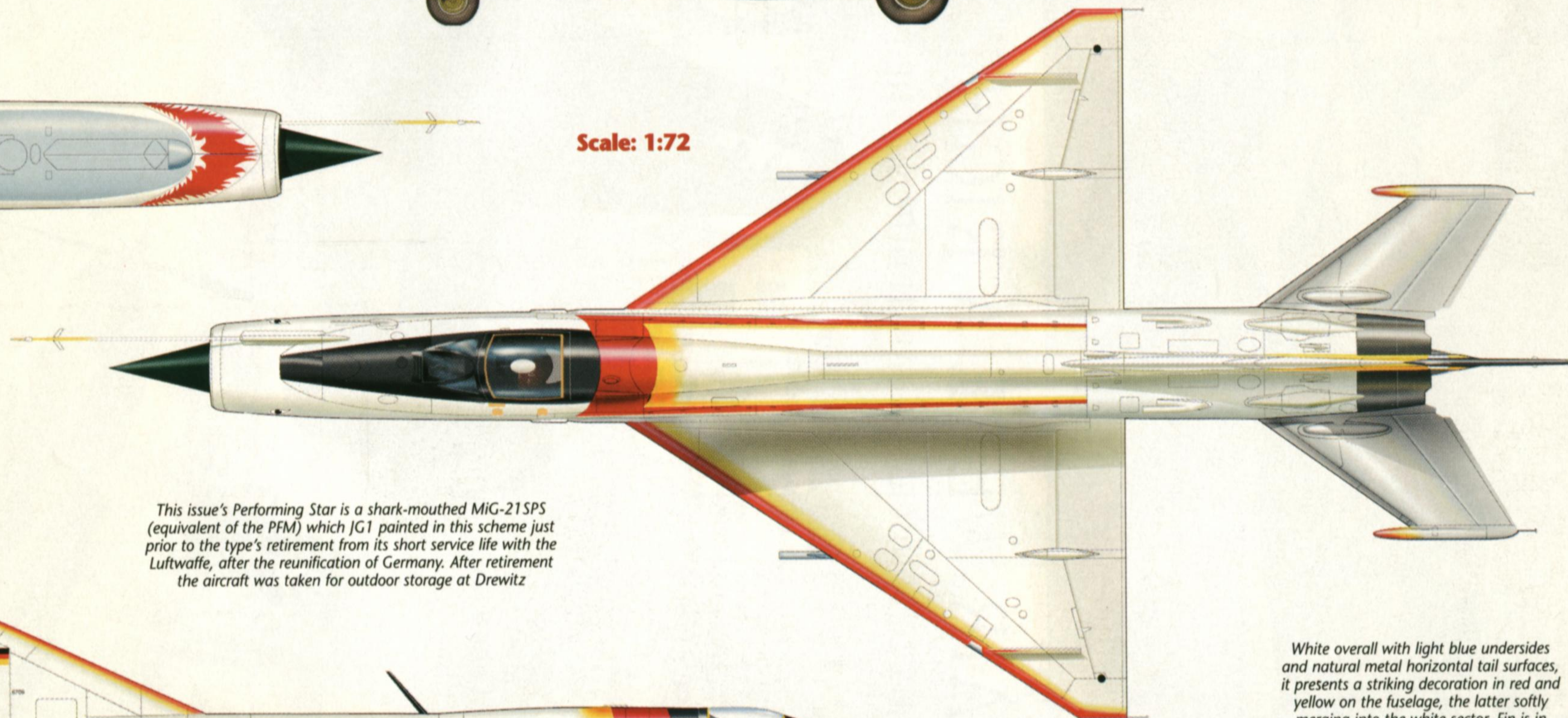
Note:

Mr Bishop and Mr Hoogland both wrote from Australia to name DC-2 PH-ALD (see June, Vol. 3 Iss. 6) 'DJalak', to record that it was destroyed at Schipol on the 10th May 1940 and that the lettering on the top of the wing was painted red. Our thanks to both correspondents.

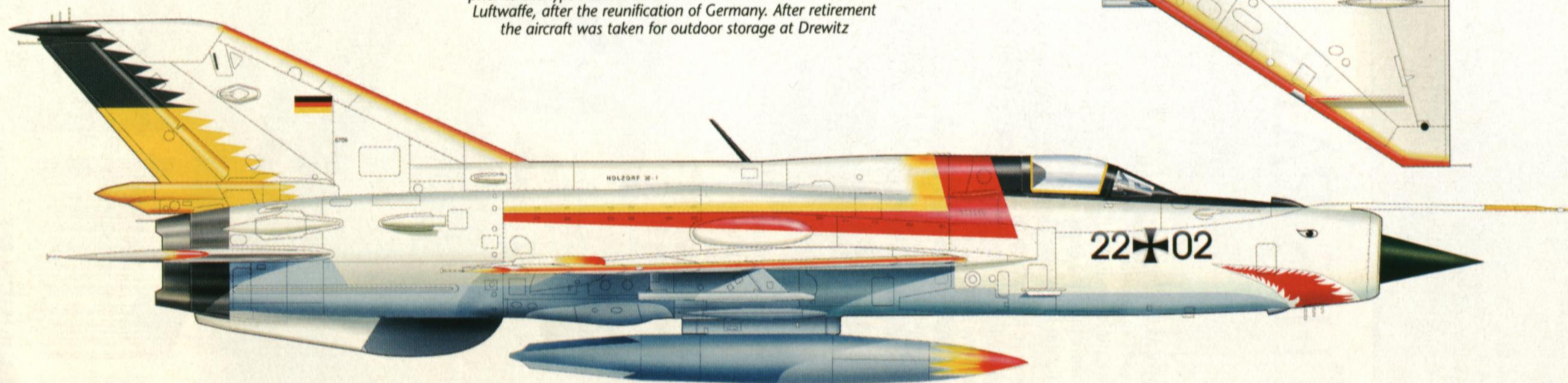
STAR Performers 5



Scale: 1:72

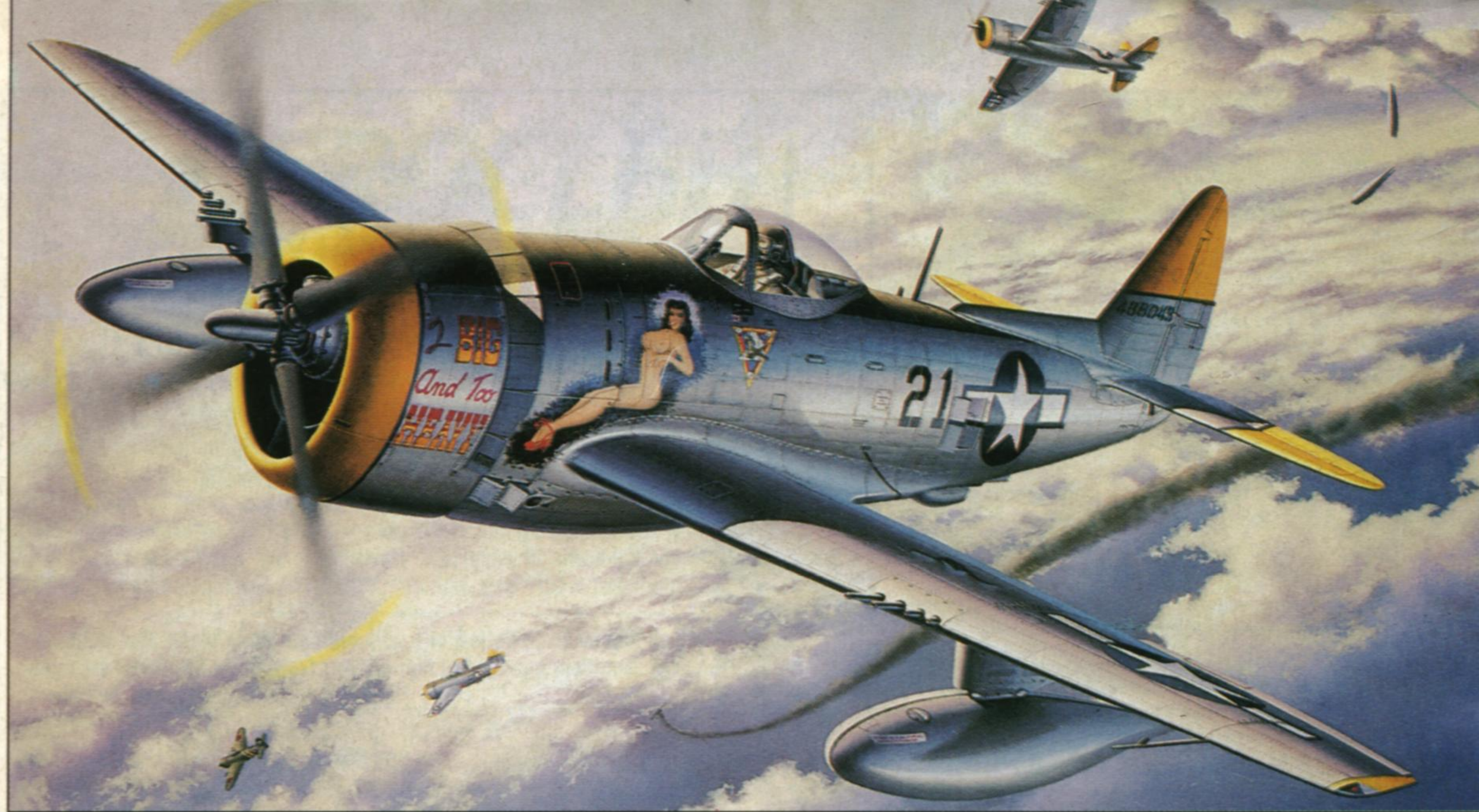


This issue's Performing Star is a shark-mouthed MiG-21SPS (equivalent of the PFM) which JG1 painted in this scheme just prior to the type's retirement from its short service life with the Luftwaffe, after the reunification of Germany. After retirement the aircraft was taken for outdoor storage at Drewitz



White overall with light blue undersides and natural metal horizontal tail surfaces, it presents a striking decoration in red and yellow on the fuselage, the latter softly merging into the white sector. Fin is in yellow and black. Note nose cone and wheel centres in dark green. Note light grey border to fuselage cross

© Richard J. Caruana - 1997



Once again the latest releases in the Revell range of newly tooled aircraft are setting the standard for plastic model kits. The P-47N Thunderbolt and the SB2C-4 Helldiver, both in 1:48 scale, feature superb detail such as engraved instrument panels and recessed panel lines, making these two aircraft the best of their type on the market today.

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Known as the 'Jug', the P-47 Thunderbolt was built in greater numbers than any other US fighter in history.

Renowned for their rugged reliability, P-47's were often flown safely home with battle damage that would have brought down almost any other aircraft.

The P-47N variant was equipped with a new wing which had a wider span and built in fuel tanks. This gave it a range of up to 3,780km. In addition to its eight wing guns, the Thunderbolt could carry twelve 127mm rockets. A total of 1806 P-47N's were built between December 1944 and December 1945.

Detailed cockpit with instrument panel

Features decals for three versions

Detailed gunners cabin

Optional pilot figure

Pilot seat with photo etched parts

Detailed fuselage with countersunk butt joints

Detailed Wright radial engine

The Helldiver first saw combat on November 11 1943, when an aircraft with call-sign VB-17 launched from the USS Bunker Hill.

The SB2C-4 was built in greater quantities than any other Helldiver variant and its Wright R-2600-20 radial engine produced 1900 horsepower for take off. It was fitted with perforated dive flaps to improve performance and handling while diving on a target. These flaps are just some of the features that have been recreated using etched metal parts for this brand new kit.

Engraved details

Detailed cockpit interior

Photo etched filigree dive brakes

Super detailed decals

Detailed landing gear

Engine detail

Recessed panel lines

Optional loads of 10 rockets and 2 bombs, or a drop tank

Models shown are prototypes, the actual products feature different decals and painting schemes.

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